UNITED STATES ARMY

MAY 1982

AVIATION DIGEST

AIR ASSAULT

MAY 1982 • VOLUME 28 • NUMBER 5

★
Brigadier General Ellis D. Parker
Army Aviation Officer
ODCSOPS, Headquarters,
Department of the Army

★★
Major General Carl H. McNair Jr.
Commander
U.S. Army Aviation Center
Fort Rucker, Alabama

★
Brigadier General Richard D. Kenyon
Deputy Commander
U.S. Army Aviation Center
Fort Rucker, Alabama

page 2

page 10

page 30

2 **Aviation Update,** BG Ellis D. Parker
9 **Aviation Personnel Notes: Key Personnel Changes; Special Duty And The Aviator**
10 **Putting The Air Assault In The Air Assault Division,** LTC Barry J. Sottak and MAJ Charles B. Cook
16 **Super Safety Training Weekend,** Captain John W. Simmons
18 **DES Report To The Field: Observation Performance Planning Card**
19 **ACTAAT: Landing Update**
20 **PEARL'S**
24 **Reporting Final**
26 **Views From Readers**
27 **Hangar Talk: TC 1-62 And TM 10-8415-206-13,** MSG Jackson R. Ooten
28 **Regional Accident Prevention Survey Program,** Mr. Timothy Flynn
30 **Threat: Soviet Air Defenses Against Attack Helicopters—Part 1: The Philosophy,** LTC Brian P. Mullady
36 **The Aviation NCO,** CSM David L. Spears
37 **RSI Report,** Mr. Rush Wicker
38 **Yellow Is Better,** CW3 Gary E. Rossomme
40 **From Routine To Near Disaster,** CW3 Robert A. Stolworthy
44 **ATC Action Line: IFR Takeoff Minimums And Departure Procedures,** Mr. F. H. Helfenberger

page 37

Yellow IS BETTER

page 38

page 40

Cover: **The Air Assault School of the 101st Airborne Division (Air Assault) teaches doctrine, builds stamina and instills the "air assault spirit" into each of its graduates. See page 10**

Honorable John O. Marsh Jr.
Secretary of the Army

Richard K. Tierney
Editor

The mission of the *U.S. Army Aviation Digest (USPS 415-350)* is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

The *Digest* is an official Department of the Army periodical published monthly under the supervision of the Commanding General, U.S. Army Aviation Center. Views expressed herein are not necessarily those of the Department of the Army nor the U.S. Army Aviation Center. Photos are U.S. Army unless otherwise specified. Use of the masculine pronoun is intended to include both genders unless otherwise stated. Material may be reprinted provided credit is given to the *Digest* and to the author unless otherwise indicated.

Articles, photos, and items of interest on Army Aviation are invited. Direct communication is authorized to Editor, *U.S. Army Aviation Digest,* P.O. Drawer P, Fort Rucker, AL 36362. Manuscripts returned upon request.

This publication has been approved by The Adjutant General Headquarters Department of the Army 14 October 1981, in accordance with Army Regulation 310-1.

Active Army units receive distribution under the pinpoint distribution system as outlined in AR 310-1. Complete DA Form 12-5 and send directly to CDR, AG Publications Center, 2800 Eastern Boulevard, Baltimore, MD 21220. For any change in distribution requirements, initiate a revised DA Form 12-5.

National Guard and Army Reserve units under pinpoint distribution also should submit DA Form 12-5. Other National Guard units should submit requests through their state adjutant general.

Those not eligible for official distribution or who desire personal copies of the *Digest* can order the magazine from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Annual subscription rates are $26.00 domestic and $32.50 overseas.

I CANNOT RECALL a *Digest* recently that has offered any better reading on a diversity of topics than this issue. As Disraeli is reputed to have claimed, "variety is the mother of enjoyment," so there should be no question about your reading enjoyment of this issue.

It begins with an indepth report from the Pentagon—"Department of the Army Aviation Update" by Brigadier General Ellis D. Parker in which he provides us with an excellent synopsis of the latest information on a number of key Army Aviation matters from his perspective at DA. The subjects are so pertinent that a collection of his once-a-quarter articles (the first appeared in our January issue) would be an excellent reference on how matters stand on top level decisions regarding our area of service.

Lieutenant Colonel Barry J. Sottak and Major Charles B. Cook collaborated on "Putting the Air Assault into the Air Assault Division." They describe concepts which will provide the 101st Airborne Division (Air Assault) an even greater ability to "slug it out on any foreseeable battlefield," the kind of air assault force needed by our combined arms team.

On those future battlefields we will be faced by a formidable threat as described in "Soviet Air Defenses Against Attack Helicopters." Accordingly, it behooves each of us to become more conversant with that threat. "Know your enemy" is exemplified in the first of three articles by Lieutenant Colonel Brian P. Mullady in which he explains the vulnerabilities of our opponent and how they can be exploited to our advantage. His is a refreshingly unique approach to describing the threat—but while vulnerability does not necessarily equate to impregnability neither is it synonymous with weakness. As LTC Mullady stresses, we must guard against complacency when weighing the power of our adversaries.

That very factor, complacency, is woven throughout the article by Chief Warrant Officer, CW3, Robert A. Stolworthy, "From Routine to Near Disaster." He has the courage to describe, in telling detail, a flight that was not accomplished in the most professional manner. Thanks, Mr. Stolworthy, for giving us the chance to learn from your mistakes; perhaps you will save a life with this writing!

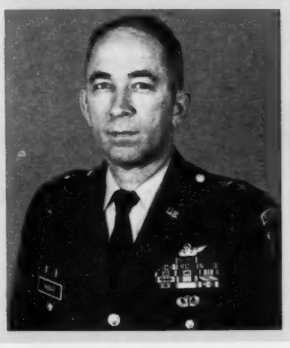
Command Sergeant Major David L. Spears, our top NCO here at the Home of Army Aviation, writes authoritatively of a key leadership element, the essential contribution to mission accomplishment made by "The Aviation NCO." He has written about "a very special group of people." And we all know that "people are the Army."

These are exciting days indeed in our Army and especially in Army Aviation, days filled with challenge and reward, days of new equipment and increased readiness and support for our Army and our mission. We have all seen a tremendous increase in our reenlistment rates, increased numbers of volunteers for our critical aviation specialties and a greater dedication to service—and these indicators are heartening indeed.

But there is one area in which we have slipped recently and that is aviation safety. Our accident rate and fatality rate for FY 1982 have been running far ahead of earlier years Armywide and, disappointingly so, also right here at the Aviation Center. We have launched an all-out effort to turn that trend around, and I am confident you will join us in this endeavor. We are all vulnerable to accidents at one time or another—regardless of unit, station, mission or proficiency level. Flight safety is simply everyone's job, from the commander through the flight platoons and the maintenance secton and finally to the crew in the aircraft itself. The responsibility belongs to us all; so please look at yourself, your section, your job, your aircraft; for your accident may be the next one. ***Don't let it happen.*** Our Army cannot afford to lose you and your aircraft because of carelessness, bravado or neglect.

Finally, before you begin to absorb the excellent articles which follow in this issue, let me give you a final reminder of the 40th birthday celebration of Army Aviation and Ft. Rucker, Friday, 4 June, through Sunday, 6 June. If you are in or near our "AO," drop in and share some history and nostalgia with the Aviation Center team.

Army Aviation, 40 years young—6 June 1982—and still growing. The June *Digest* will feature some super articles describing these 40 years, leading off with a splendid historical perspective by BG William W. Ford, the first director of Air Training at Fort Sill, 2 January 1942—5 months before the historic War Department directive authorizing "organic air observation for field artillery" that led to today's modern aviation force—"Above The Best."



Major General Carl H. McNair Jr.
Commander, U.S. Army Aviation Center
Fort Rucker, AL

Department of the Army

AVIATION UPDATE

Brigadier General Ellis D. Parker
Army Aviation Officer, ODCSOPS
Headquarters, Department of the Army

THIS PAST QUARTER has been an extremely busy one for all involved with aviation at Department of the Army. As you know, aviation must compete each year for a portion of the Army budget. In days of constrained resources, competition demands the best effort, teamwork and coordination in building the aviation program. Part of my broad responsibility is to provide necessary oversight in program and budget development, and to defend before Congress the validity of our requirements and the soundness of our program management. LTG James H. Merryman, the Deputy Chief of Staff for Research, Development, and Acquisition, myself and many others, have spent a significant amount of time in this arena the last few months. As this is being written, we are expecting some major Congressional decisions in the very near future.

Aviation Systems

• **AH-64.** We have a production go ahead from the Secretary of Defense. On 26 March 1982, after cost differences between the contractor and the Army were resolved, the Defense Systems Acquisition Review Council approved the production of 446 aircraft over the next 5 years. This is a major milestone in the history of Army Aviation. In the very near future we will begin adding to our inventory an attack helicopter capable of finding, engaging and destroying enemy armor and other forces during day, night and adverse weather conditions. For those who have worked so hard over the last 9 years to make the AH-64 a reality, you can be proud of what you have accomplished for the Army and the fighting capability of our Armed Forces.

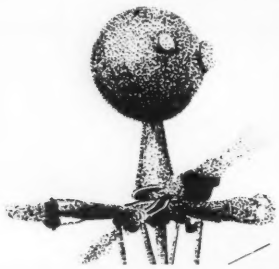
GLOSSARY

AHIP	Army Helicopter Improvement Program
AIMI	aviation intensive management items
AR	Army Regulation
ARNG	Army National Guard
ATC	air traffic control
AVIM	aviation intermediate maintenance
CCAD	Corpus Christi Army Depot
CMF	career management field
CONUS	continental United States
CY	calendar year
DARR	Department of the Army Regional Representatives
DSARC	Defense Systems Acquisition Review Council
ECAS	Enhanced Cobra Armament System
FAA	Federal Aviation Administration
FAMF	Floating Aircraft Maintenance Facility
FAR	Federal Aviation Regulations
FM	fully modernized
FY	fiscal year
GPS	Global Positioning System
HQDA	Headquarters, Department of the Army
IFR	instrument flight rules
LAPES	Low Altitude Parachute Extraction System
LTG	lieutenant general
MAJ	major
MEDEVAC	medical evacuation
MG	major general
MLMS	Multi-Purpose Light Weight Missile System
MOD	modernized
MOS	military occupational specialty
MTOE	Modification Table of Organization and Equipment
NOE	nap-of-the-earth
PATCO	Professional Air Traffic Controller's Organization
PIP	Product Improvement Program
POMCUS	prepositioning of materiel configured to unit sets
PROD	production
RAM	reliability, availability, maintainability
RAPID	rapid Army priority item delivery
RPM	revolutions per minute
SEMA-X	special electronic mission aircraft
SGM	sergeant major
SIMOS	space imbalance MOS
TDY	temporary duty
TOE	table of organization and equipment
TOW	tube-launched, optically-tracked, wire-guided
TRADOC	U.S. Army Training and Doctrine Command
TSARCOM	U.S. Army Troop Support and Aviation Materiel Readiness Command
TWX	teletypewriter exchange
USAREUR	U.S. Army, Europe
WSPS	Wire Strike Protection System

• **UH-60A.** The first UH-60A Black hawk medevac configured helicopter was introduced into the Army at a formal acceptance ceremony on 14 January 1982, at Ft. Campbell, KY. It was a big day for the 101st Airborne Division (Air Assault), and certainly for the 326th Medical Battalion. LTG Bernhard T. Mittemeyer, Surgeon General of the Army, and MG Charles W. Bagnal, commander of the 101st Airborne Division (AA) both participated in the ceremony. Unquestionably, the Black Hawk medevac helicopter is a major improvement over the 22-year-old faithful and reliable workhorse of the Army, the UH-1 Huey. It carries four litters in the combat configuration, provides full patient accessibility and is easy to load. Its speed is a major advantage, as time is critical and rapid evacuation a must if we are to ensure rapid treatment. Further, the speed and range of the Black Hawk allow the medical commander flexibility in the strategic placement of hospitals and clearing stations in any combat operation.

The U.S. Army/Sikorsky Aircraft Black Hawk Team was the Army nominee for the 1981 Robert J. Collier Trophy. This award is presented annually by the National Aeronautic Association for the greatest achievement in aeronautics or astronautics in America, with respect to improving the performance, efficiency or safety of air or space vehicles—the value of which has been thoroughly demonstrated by actual use during the preceding year. Unfortunately, we lost out to the space shuttle this year.

• **Army Helicopter Improvement Program.** On 8 March, the Army System Acquisition Review Council approved the AHIP to proceed to a Department of Defense Program Go-Ahead Review, to continue full-scale engineering development and to pursue an acquisition strategy which requires the procurement of long-lead items starting in fiscal year 1983 to protect early production schedules. This is the first major step in seeing a new scout helicopter in the field. The AHIP program managers are attempting to speed the acquisition process by getting OSD permission for the Army to make the final production decision.

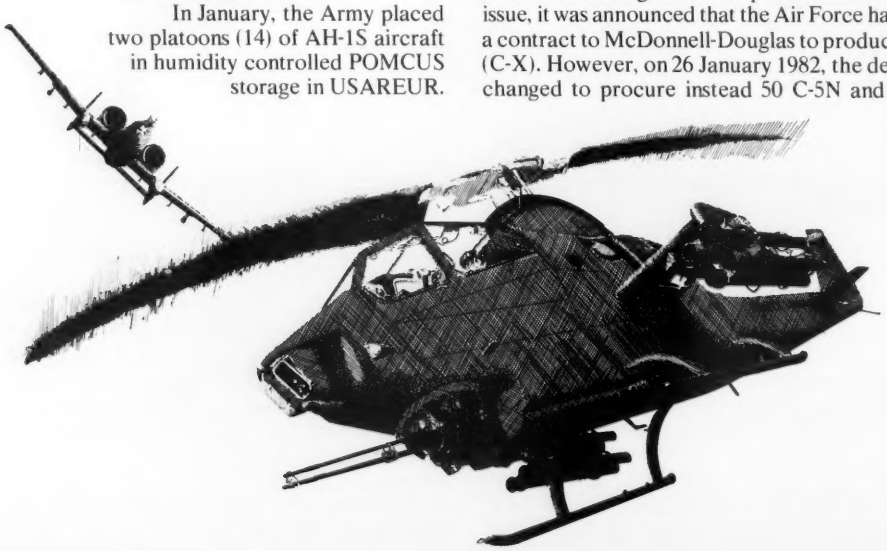


• **AH-1S.** The AH-1S FM Cobra distribution is in its second year and remains on schedule. Following closely behind the fully modernized program is a decision on Cobra 2000—a block improvement program that would upgrade 488 older generation (MOD, PROD, ECAS) aircraft by adding night/adverse weather capability, improved TOW, reducing weight and increasing performance, and upgrading certain components to current state-of-the-art technology to improve standardization, maintainability and effectiveness.

In January, the Army placed two platoons (14) of AH-1S aircraft in humidity controlled POMCUS storage in USAREUR. After 6 months, one attack platoon will be removed, flown and test fired to establish the impact of storage, time, manhours and resources needed to make them fully operational. The second platoon will be retained in storage for 1 year, then removed and the same assessment will be made to establish the impact of long-term storage. Comparison data will hopefully provide optimum storage times and other information. All aircraft will then be issued to a USAREUR unit and 6 months of RAM data collected to further evaluate the total effect of this year-long storage.

• **Joint Services Advanced Vertical Lift Aircraft Development Program (JVX).** In December 1981, the Deputy Secretary of Defense tasked the Army to take the lead, as Executive Service, in the joint development of a multimission, common airframe to be procured in the early 1990s. The goal of the program is to develop an aircraft that is best suited for the Army SEMA-X Program, Air Force/Navy search and rescue, Air Force special operations and Marine Corps assault (HXM) requirements. This is a long-range program designed to increase defense capability in multiple mission areas by providing a common aircraft at low risk. All services are actively engaged in the program now in a sense of mutual cooperation, and progress reports will follow in the months ahead.

• **C-17.** Although not our program, the Army, as the primary user of Air Force transport, has a definite interest in strategic airlift capabilities. In the January issue, it was announced that the Air Force had awarded a contract to McDonnell-Douglas to produce the C-17 (C-X). However, on 26 January 1982, the decision was changed to procure instead 50 C-5N and 44 KC-10



aircraft. Apparently, the overriding factor was the need for a near-term solution to meet current deficiencies in airlift capability. Unfortunately, Army requirements for air drop, LAPES, rapid combat on/off load, increased reliability and lower life cycle cost remain unsatisfied. The C-17 met all Army needs, to include those for intratheater outsized cargo airlift. We are working to keep consideration for the C-17 alive, if only in research and development for the immediate future.

• **Multi-Purpose Light Weight Missile System.** The proposed MLMS consists of an air-to-air missile, launcher and associated avionics/fire control designed for helicopter mounting. The system is conceived as a self-defense weapon that would provide fire and forget protection against hostile air weapons systems that may threaten mission accomplishment. This will provide a potential capability to configure aircraft within the air cavalry or attack helicopter team with the MLMS based on the commander's analysis of the tactical situation. The MLMS will improve the capabilities of scout and attack helicopter teams to counter enemy air while pursuing their primary missions, thus enhancing survivability and contributing to overall mission accomplishment.

• **Wire Strike Protection System.** OH-58A: Kit fielding began last summer and will continue through June with a total of 1,339 kits provided to the Army.

OH-58C: A contract was awarded on 1 July 1981. A delivery date of December 1982 is expected.

OH-6A: Still in concept development stage.

UH-1: A contract award was made 30 September 1981, and the swing test was completed in December 1981, at Langely AFB. Beginning in October 1982, the kit delivery schedule calls for 19 the first month and 75 each month thereafter, for a total of 619 kits.

UH-60: An Equipment Change Proposal was provided to Sikorsky on 15 July 1981. Anticipated contract award for production cut-in is June 1982. The PIP for fielded aircraft is not yet funded.

AH-64: The Project Manager has included the WSPS in the Block I improvement program scheduled to begin in FY 1985, if approved.

AH-1S: The Phase III testing and qualification contract was signed on 28 September 1981. Swing tests and flight tests are scheduled for completion this month. If successful, kit deliveries are projected to begin December 1982.

Aviation Personnel

• **The Army Aviation Engineering/ Flight Testing Selection Board** convened on 20 to 22 January 1982 to select applicants for attendance into the program for FY 1982-1983. A total of 65 applicants went before the board; 4 primary and 4 alternates were selected. Program of instruction begins with 60 days of instruction at Edwards Air Force Base, CA, followed by 11 months at Patuxent River, MD. Selectees incur a 4-year obligation.

• **Aviation Warrant Officers.** Aviation Maintenance Technician (Non-Rated), MOS 160AO is open for appointment from the enlisted ranks for the remainder of FY 1982, and probably will continue into early FY 1983. Thirty-five warrant officers are to be appointed, and applications are encouraged.

Air Traffic Control Technician, MOS 150AO, has been approved effective 1 September 1982. Thirty-seven are to be appointed in FY 1983.

MOS 100EO, Attack Helicopter Pilot, has 1,508 trained personnel as of 1 December 1981. MOS 100KO, Multiengine Attack Helicopter Pilot (AH-64), has been approved and future training will be provided to selected 100E aviators. Future increases of airframes in the active inventory, AH-1 plus AH-64, will increase the requirement for attack helicopter pilots. Ongoing studies for around-the-clock crews are expected to further increase requirements. Training rates may have to be increased to meet future requirements.

MOS 100CO, Cargo Helicopter Pilot, has the potential to become a space imbalance MOS. SIMOS is defined as 55 percent or more authorizations overseas. Deployment of additional CH-47 units overseas will aggravate the SIMOS condition. In addition, of the 673 in the MOS, 164 (24 percent) have 18 or more years of service. Training rates and assignment policies are being reviewed.

Aircraft Armament Repair Course started 19 February 1982 at Ft. Eustis, VA. This course meets a critical field requirement for MOS 100EE, 100BE and 160AE. Commanders may request quotas, using local funds for TDY, by calling MAJ Michael Jennings or SGM Donald Merritt at AUTOVON 221-8158. Warrant

Officer Division will also be sending officers to the course en route to their next assignment.

MOS 100R, Combat Surveillance Fixed Wing Pilot, will also be a SIMOS in future years. This is a relatively small field with 52 authorizations of which 30 are overseas. Ten pilots must be trained per year (1983 rate) to sustain this MOS. Careful management of these personnel will preclude a problem provided training quotas are not reduced and loss rates do not increase due to the SIMOS condition.

• **Enlisted Aviation Management.** The Army Aviation Maintenance Career Management Field 67 Study was completed some time ago. Many of you may not be aware of the key decisions that resulted from that study. They are:

☐ AIT students will be trained as "doers" (vice assistant repairers) and will arrive at their first units as trained mechanics.

☐ Control will be exercised over the influx of people from other specialties to allow CMF 67 to "grow its own" supervisors, complete with technical skills.

☐ Each soldier will remain with a family of aircraft up to and including grade E7 to provide technically proficient supervisors.

☐ A member of CMF 67 can become a crewchief at grade E3 and remain with the same aircraft through E6.

☐ There will be separate technical inspector MOSs by type aircraft to provide better quality assurance programs.

☐ Still being evaluated are: reenlistments, migration, and monetary and nonmonetary incentives. All provisions of the restructure are to be completed by October 1983.

• **Commissioned Aviators.** The Task Selection Board, established by TRADOC to determine the tasks that SC 15 company grade aviators should be able to perform, met in March to review the analysis conducted by each TRADOC school involved. Their recommendations as to which tasks should be taught, how they should be taught and where they should be taught are expected by mid-summer.

• **Aircrew Ratio Study.** In August 1978, TRADOC began an intensive study to determine the number of aviators, nonrated aircrew personnel and aviation maintenance personnel necessary to man and maintain Army aircraft to sustain operations in a high threat (wartime) environment. The study was completed in December 1979, and the aviator ratios were subsequently approved by the Deputy Chief of Staff for Operations, HQDA. The approved aviator to aircraft seat ratios are as follows:

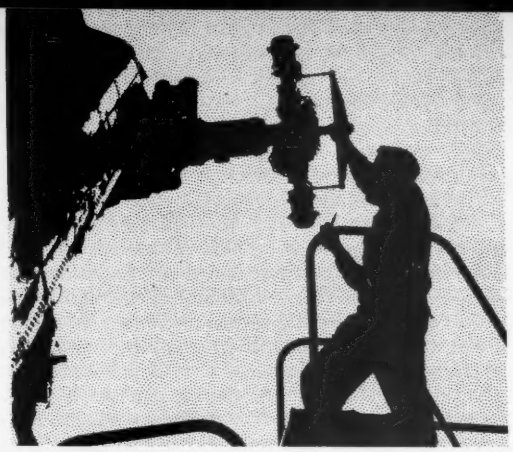
ATK HEL CO	MED HEL CO
AH-64 — 1.25:1	CH-47C — 1.14:1
AH-1S — 1.20:1	CH-47D — 1.13:1
OH-58 — 1.42:1	
AIR CAV TRP	**DIV AVN CO**
AH-64 — 1.29:1	OH-58 — 1.31:1
AH-1S — 1.33:1	UH-1 — 1.29:1
OH-58 — 1.80:1	
CBT SPT AVN CO	**MEDEVAC CO**
UH-1 — 1.42:1	UH-1 — 1.45:1
UH-60 — 1.36:1	UH-60 — 1.49:1

TRADOC is now developing the first phase of an implementation plan to document the additional aviator requirements in Army 86 aviation unit TOE/MTOE. During Phase II, they will determine how the new requirements will be manned in wartime and if we can afford some peacetime fill for key units. The nonrated aircrew and maintenance personnel implementation plan will be developed later, following completion of the Combat Service Support Mission Area Analysis and enlisted Manpower Authorization Criteria (MACRIT) Studies.

The pilot requirements for the AHIP (two versus one) are under close scrutiny. More to come on this.

Aviation Logistics

• **Floating Aircraft Maintenance Facility.** Mr. Joe Cribbins' aviation logistics office plays an active role in ensuring top level support for our maintenance programs. They have been working on several things recently, to include the Floating Aircraft Maintenance Facility. Many recall the Navy seaplane tender, the *Corpus Christi Bay*, which the Army modified into an aircraft maintenance facility. It was outfitted to maintain aircraft engines and components with supporting fabrication shops, metallurgical and chemical laboratories and other support of Army Aviation. The FAMF was highly successful, operating offshore in Vietnam



from early 1966 to December 1972 when it was returned to CONUS. Subsequently, the mission support equipment was removed and returned to the Navy, because of the age of the ship and lack of immediate requirements. As a result of greatly renewed interest, however, and the requirement for a quick deployment capability, the FAMF concept is being revisited. The project involves looking at a ship that can transport helicopters, maintain high-value, critical components (black boxes, line replaceable units and printed circuit boards); provide clean rooms, humidity controlled environment, and stockage or war reserve parts. The FAMF Revisited Study is well underway, but the greatest problem will be affordability.

• **Rapid Army Priority Item Delivery.** An AIMI (aviation intensive management items) initiative kicked off by the Deputy Chief of Staff for Logistics, RAPID is now under test in Europe. The RAPID concept allows Corps AVIM battalions to TWX for an item grounding an aircraft (or even by telephone) directly to the operations center at the Troop Support and Aviation Materiel Readiness Command. TSARCOM, in turn, directs that the item be issued and airlifted on the first available flight. The goal of RAPID is to cut down "order and ship times" from more than 20 days to fewer than 5 days. If RAPID works well in Europe, it may be extended to other theaters and commands.

• **Twenty-Four Hour Hotline.** Corpus Christi Army Depot has established a 24-hour hotline, AUTOVON 861-2651, which enables users in the field to make a service call to CCAD engineers who can help diagnose aircraft engine problems and relay what is needed to fix the engine. About 25 percent of these calls in FY 1981 resulted in the engines being fixed in the field. When the hotline doesn't work, and the number of engines to be repaired warrant field services from CCAD, engineers are sent TDY. These teams repaired 360 engines in FY 1981. Cost avoidance/savings for the hotline and TDY teams in FY 1981 were $15.5M.

• **Improvement of Fuel Consumption.** Early in 1981, a program was initiated between Aviation Research and Development Command and DA to reduce aircraft fuel consumption at the Aviation Engineering Flight Activity, Edwards AFB, CA. Revised AH-1S, UH-1H and OH-58C checklists have been drafted and approved and currently are going through an aircraft evaluation. Modified performance charts have been prepared and testing is ongoing. Calculators to allow pilots to quickly calculate the most fuel efficient flight profile for a given mission are being procured. OH-58C and UH-1 cold and hot weather performance testing is completed. AH-1S testing is ongoing and is expected to be completed this July. The objective is to provide flight crews data to enable them to fly at an altitude and RPM to achieve the most economical fuel consumption rates. There is no intent, however, to dictate flight profiles that would conflict with missions.

Aviation Safety

Safety statistics for 1981 reflect that it was not as good a year as we had in 1980. However, the efforts of all of you are evident in the progress we have made over the last several years.

• **Aircraft Accidents.** There has been a steady reduction of major aircraft accidents since the formal aviation accident prevention program began in 1958. There were 54.3 major accidents per 100,000 flying hours in 1958 compared to 2.28 in 1980—a record year.

During the 4-year period 1977 to 1980, the Army had an average of 43 Class A aviation mishaps and 34 aircraft destroyed at a cost of 31 fatalities and $35.7M per year. However, these Class A mishaps represent only 17 percent of the DOD aviation accidents.

CY 1981 statistics reflect an increase when compared to the two previous years.

	CY 79	CY 80	CY 81
Class A Mishaps	44	38	46
Destroyed Aircraft	35	31	40
Fatalities	19	26	28
Class A Mishap Rate	3.05	2.28	2.79

Utility helicopters are the single greatest source of Class A, B and C mishaps and dollar losses. Utility helicopters also have the greatest exposure in terms of number of aircraft in the field environment. While exposure may explain the high numbers, the greatest potential gains for reduction of mishaps and dollar losses can be made in the utility helicopter area.

The U.S. Army Safety Center conducted a special analysis of CY 1981 utility helicopter mishaps and found no new cause factor patterns or any factors that were appreciably different from previous years. The failure of pilots, instructor pilots, flight leaders and commanders to adhere to regulations and other directives in the performance of their mission accounted for most of these mishaps.

The Army's plan to reduce aviation losses in the near term (12 to 18 months) includes both proactive initiatives and after-the-fact analysis and feedback to users on a timely basis.

Other Areas

• **NAVSTAR Global Positioning System.** The Army is looking at several position locating systems that have possibilities for military use. One of these is the NAVSTAR Global Positioning System. Under joint service development, NAVSTAR GPS provides a locating system using a worldwide common grid for both ground and aviation use. Terminals can be deployed with pathfinders, forward observers, reconnaissance and surveillance units, signal units, ranger units, as well as many others. Its application to aviation is particularly significant. It will give aviators the capability to navigate at NOE to selected points with total precision; pinpoint target positions for attack teams; make instrument approaches to specific spots; and communicate the position of downed crewmen quickly and accurately. Its uses are truly unlimited.

• **Use of the National ATC System.** The continuance of an operational national ATC system during the PATCO strike caused some major policy changes in the use of the ATC system. One of these changes was the initiation of flow control on civil air traffic. This means a civilian aircraft must get a "reservation" for an IFR flight prior to takeoff, and the routing will be as designated by ATC. To date, most military flights have been exempted from the reservation requirements. In order to continue this desirable situation, aviation personnel should try to minimize the number of flights into high density areas or try to use off-peak periods if possible. If the civil craft operators perceive they are being denied flight reservations by military use of critical airspace for less than serious purposes, they may cause pressure to have the military included in the reservation system.

• **Aerial Demonstrations.** Several incidents have come to my attention in the past few months of Army Aviation and parachute jumping demonstrations which have attracted adverse publicity or incurred alleged violations of Federal Air Regulations. One of the principal causes of these undesirable incidents seems to be misunderstanding of ARs and FARs governing aerial demonstrations by both the Army and FAA officials involved. The Army has Department of the Army Regional Representatives to each of the FAA Regional Headquarters. Their primary mission is to coordinate Army requirements for the use of the national airspace. Direct coordination between the aviators flying the demonstrations and the DARRs could clarify the situation while it is still in the planning stage, and consequently, reduce the adverse publicity and allegations of FAR violations. The DARR's phone numbers are listed in AR 95-50 and the Flight Information Bulletin, which is supplied to all Army flight operations offices. Aviators should be cautious when accepting demonstration clearances obtained by non-aviation oriented personnel. The relay of clearances and limitations for flight demonstrations by personnel not familiar with flight rules seems to be a major source of the misunderstanding.

• **The Army National Guard Aviation Program** has experienced tremendous growth over the past 10 years in both the number of aircraft operated and maintained and in aviator personnel. In 1971, more than 221,000 hours were flown by 2,500 ARNG aviators in 1,027 aircraft with an aircraft accident rate experience of 11.3 accidents per 100,000 hours. At the end of FY 1981, more than 312,000 hours were flown by 4,538 ARNG aviators in 2,583 aircraft with an accident rate of only 2.88. The contribution of ARNG aviation to the overall Army Aviation program is illustrated by the fact that 30 percent of the Total Army Aviation force structure is within the Army National Guard. The success of the ARNG aviation program can be attributed to resourceful leadership at the state and local level, innovative management at the national level and an unyielding committment to aviation safety at all levels.

• **Aviation Awards.** Last January, we sent a message (DTG 131546Z Jan 82) to all aviation units announcing the 12 nonfederally sponsored awards in which Army Aviation may participate during 1982. These are very prestigious award programs designed to recognize the outstanding civilian or military contributions in various aspects of aviation. Many of our aviators and aviation units are qualified to compete, but their accomplishments need to be brought to our attention. Please review the award criteria contained in the message.

AVIATION PERSONNEL NOTES

Key Personnel Changes

MILITARY Personnel Center has announced major personnel changes which should be of interest to all Officer Personnel Management Directorate managed officers. Colonel J Thomas H. Denney has been assigned as chief, Plans, Programs and Analysis Division. A Master Army Aviator with extensive aviation experience, COL Denney has served in numerous artillery and aviation positions in the 101st Airborne Division (Air Assault) and commanded the 477th ARA BN at Ft. Campbell, KY.

LTC Turner E. Grimsley has come from being the squadron commander of the 4/17th Cav in Korea. He is now SC 15 colonel (06) assignment officer.

Major David Hicks has arrived after a tour in Europe to become the SC 15 lieutenant colonel assignment officer; he will replace Major George Sweat who will be reassigned to Korea in May. Major Steve DeVault will be working in major assignments along with Major Gary Steimle; Steve also arrived from Europe in early January.

Over in Warrant Officer Division COL Paul J. Wenzel has moved from the chief assignments of Combat Arms Division to the chief of Warrant Officer Division, replacing COL George A. Morgan who has gone to the Pentagon to work as the liaison to the High Technology Test Bed at Ft. Lewis, WA. LTC Doug Thorp, Deputy Division Chief, has been reassigned to HQ, DARCOM, with no replacement named at this time. CW4 David Helton is in from Ft. Campbell and has replaced CW4 Lee Komich as Aviation Assignment Branch chief. CW4 Komich has been reassigned to Alaska. CW4 Jim Newhouse will depart in early May for an operational flying position, while CW3(P) Larry Morgan is in from the 11th Group in Germany to handle 100C, 100Q, 100R and 160A assignments. Over in the Professional Development Branch, CW4 Lloyd Washer is now branch chief, coming in from 1st Personnel Command in Germany. CW4 Washer took over from CW4 Dick Sauer, who retired after 25 years of service.

Special Duty and the Aviator

SPECIAL DUTY or SD has become a well-known term in today's Army—a term that often strikes fear in the hearts of our boldest aviators. It's doubtful that there is an Army installation in the world that does not have officer special duty positions, and experience tells us that Army aviators share the burden of filling these positions.

Special duty positions comprise those requirements on an installation for which there is no authorized position; yet the job requires an officer on a full-time basis for mission accomplishment. These positions, while normally valid and usually career enhancing, are seldom operational flying positions. Herein lies the problem. Regardless of the mechanism used, an aviator "attached" or "SD'd" from an operational flying slot to an installation, division or corp staff position to function where flying is not required as a part of the primary duties will not receive operational flying duty credit.

Due to an abundance of commissioned aviators, particularly at the field grade level (coupled with a shortage of field grade aviation positions), the movement of aviators into SD positions at the installation level has become commonplace. While this practice is often the only solution to meeting command established priorities for personnel managers in the field, it is imperative that aviators and personnel managers remain cognizant of the impact on aviator "gate" qualification.

Putting the AIR ASSAULT in AIR ASSAULT AIR ASSAULT the AIR ASSAULT Division

The opinions expressed in this article are those of the authors and do not necessarily reflect the views of any Department of Defense agency

Lieutenant Colonel Barry J. Sottak
Commander, 101st Avn Bn (AH)
Fort Campbell, KY

Major Charles B. Cook
Command and General Staff College
Fort Leavenworth, KS

Major Cook was assigned as commander, Co. D, 101st Avn Bn (AH), Fort Campbell, KY, when he coauthored this article

EVER SEE THE cigarette advertisement with the foxy looking young lady saying, "You've come a long way, baby"? So has Army Aviation through some 40 years of both evolutionary and revolutionary developments. Indeed the capabilities of the helicopter—from the ungainly, underpowered rotorcraft of the past to the modern, powerful state-of-the-art machines of today—have had a dramatic impact on Army doctrine, organization and training. Today, the potential contributions of helicopters to modern battlefield success are widely recognized and reflected in a plethora of new training literature, organizational documents and equipment. With its recent combat arms designation, Army Aviation proudly accepts its place as a full-fledged coequal member of the combined arms team. In the dynamic areas of equipment, tactics, doctrine and training, Army Aviation continues to seek better and more efficient ways to integrate and employ its resources. The purpose of this paper is to describe new concepts within the 101st Airborne Division (Air Assault) aimed toward that end.

The fundamental advantage of an air assault force lies in its ability to use organic helicopters to provide a significant tactical mobility and/or firepower differential over the enemy. We know from doctrine already developed that heliborne forces can attack from any direction, strike otherwise inaccessible areas, bypass obstacles, rapidly place forces in the concentrations desired at decisive locations and they can react rapidly to tactical opportunities. Also, they allow more of the commander's force to be committed thereby requiring smaller reserves.

Air assault forces, like all other combat arms elements, are affected or limited by certain unique factors, of which the following are the most significant: weather extremes, allowable cargo/passenger capacities, aircraft availability, the need to maintain air lines of communications beyond friendly lines, vulnerability to enemy action during pickup zone/landing zone (PZ/LZ) operations and the air defense threat.

Air assault force commanders, like their colleagues in armor, mech, airborne or straight "leg" units, employ the basic principles of FM 100-5 to enhance survival on the modern, lethal battlefield of today. If we allowed the enemy to maximize his strengths against our own weaknesses, we would deserve the defeat that will almost surely follow. However, with the aid of modern technology, realistic training and proper integration of Army Aviation into the combined arms team, the weak-

nesses of the air assault force can be minimized while simultaneously maximizing its strengths.

The Army has had aviation units supporting its forces for more than 30 years—normally an organic, composite battalion supporting a division. As such, the division commander has been able to take advantage of the helicopter at least on a small scale—usually battalion-size operations or less. Though small in scope, these operations still afforded the commander a great deal of flexibility in his ground tactical planning. By combining the best features of the forces available to him into one combined arms team, the commander normally enhanced the employment of his total force.

The Soviet airmobile threat is a formidable one. The large numbers of sophisticated helicopters available in the Frontal Tactical Air Armies could easily be used to conduct airmobile operations using troops drawn from motorized or airborne units. It would be naive to believe that the Soviets do not consider this capability an important feature of their high speed offense. On the other hand, the U.S. Army that developed the airmobile concedpt has elected to retain a mix of divisional units to include the world's only air assault division. Arguments as to which concept is the most effective could probably rage on forever. In these days of scarce dollars and resources, it often becomes necessary to defend the cost of one of the Army's largest, most expensive divisions, particularly in light of the increasing threat. Many have asked if the 101st Airborne Division (Air Assault) is not just a scaled up version of the battalion-sized force available to most division commanders using the one or two lift companies available to them. Since there are only two lift battalions in a division with three maneuver brigades, a criticism was often heard that there would be insufficient lift to adequately support the air assault division if all three brigades were committed simultaneously. When the UH-1 Huey was the mainstay of the lift fleet, the criticism could not be taken lightly.

ABOVE: The AH-1 Cobra attack helicopter provides the division with a knockout punch
RIGHT: The CH-47 Chinook's capability to move artillery about the battlefield enhances the already significant firepower of the division

Photographs by Ft. Campbell Public Affairs Office and by Major Charles B. Cook

Due to significant limitations involving survivability, lift capacity and staying power, the division was probably best described as a "leg" unit with a significant airmobile capability rather than being a true air assault division. Indeed, air assault operations were limited by aviation state-of-the-art and one could seriously challenge the utility of the air assault concept in light of the increased threat of the 1980s.

The air assault division of today, however, has a dramatically different appearance than the division of the 1960s or 1970s. With the recent acquisition of a new family of modern weapons systems, the division can assess the threat with equipment that has already been fielded—not future systems that are on the drawing boards or in various stages of development (which seems to be strictly an American technique). Such future systems war game well on paper but are useless against a well equipped opponent until they have been fielded and are in the hands of the users.

With its 90-UH-60 Black Hawks and large number of modernized AH-1S Cobras, the 101st has a new family of aircraft designed to cope with rigors of today's battlefields. It does not have to face the 1980s with aircraft technology dating back to the 1960s. To ensure that our tactical doctrine keeps pace with

and maximizes the increased capabilities afforded by these new helicopters, many new experiments are being conducted. The 101st is a unique division, not just because of its large number of helicopters but, more importantly, because of its ability to closely integrate infantry, aviation, fire support and close air support into one combined arms team. The division's combat power has been dramatically improved by the increased mobility, survivability and firepower afforded by its new aircraft and a new fleet of TOW mounted jeeps. With proper use of all other combat multipliers, the 101st Airborne Division (AA) has the capability to slug it out on any forseeable battlefield of the next decade with less regard for its limitations and with more flexibility due to its newly acquired strengths.

One of the new concepts being experimented with has to do with the manner in which aviation units provide support to the infantry task force. Until recently, if three brigade task forces were employed simultaneously, their tactical mobility would be seriously impaired because of the inadequate lift capacity of the two UH-1 equipped lift battalions to support three maneuver brigades. The solution was readily apparent, though cost prohibitive: a third lift battalion was required! The advantages of a third lift battalion are manifold. First, a direct support (DS) aviation battalion could be habitually associated with a maneuver brigade in a manner paralleling field artillery doctrine. In the peacetime training environment, supporting aviation units would be in sync with the supported brigades' training cycle. This arrangement would provide aviation units with the opportunity to plan and conduct maintenance and training based on carefully developed, realistic, short and long range training plans. Under a two-lift-battalion concept, aviation units are rarely able to execute planned training due to being preempted by, and reactionary to, the plans of supported units and a myriad of other unprogramed, short-fused taskings from higher headquarters (HQ). Second, each brigade would have a dedicated aviation command and control HQ as part of its task organization. The brigade commander would have an aviation battalion commander and staff at his disposal to facilitate aviation planning and integration, and more importantly, he would have for the first time a dedicated, highly qualified and properly equipped agency to control all combat aviation assets allocated to him. By having a parallel control structure in all three brigades, combat aviation assets could be massed and shifted about the battlefield rapidly to meet tactical requirements; and combat aviation would be controlled by the people best qualified to do it, i.e., combat aviators! Third, the habitual support relationship would foster tremendous teamwork, confidence, esprit and efficiency as the task force trained together, refined unit standing operating procedures (SOPs), etc.

AIR ASSAULT

It is unlikely, however, that the air assault division will be authorized the needed third lift battalion in the near term. Given this reality and recognizing the need for improved aviation responsiveness to meet the tempo and dynamics of modern battle, the air assault division has developed a new system for providing aviation support. The new system uses in-house resources, features a dedicated aviation battalion in direct support of each maneuver brigade and provides each brigade with a base line aviation slice with which to conduct training. The third command and control headquarters comes from the attack helicopter battalion. Each brigade slice consists of two assault helicopter companies (UH-60) and one attack helicopter company (AH-1S).

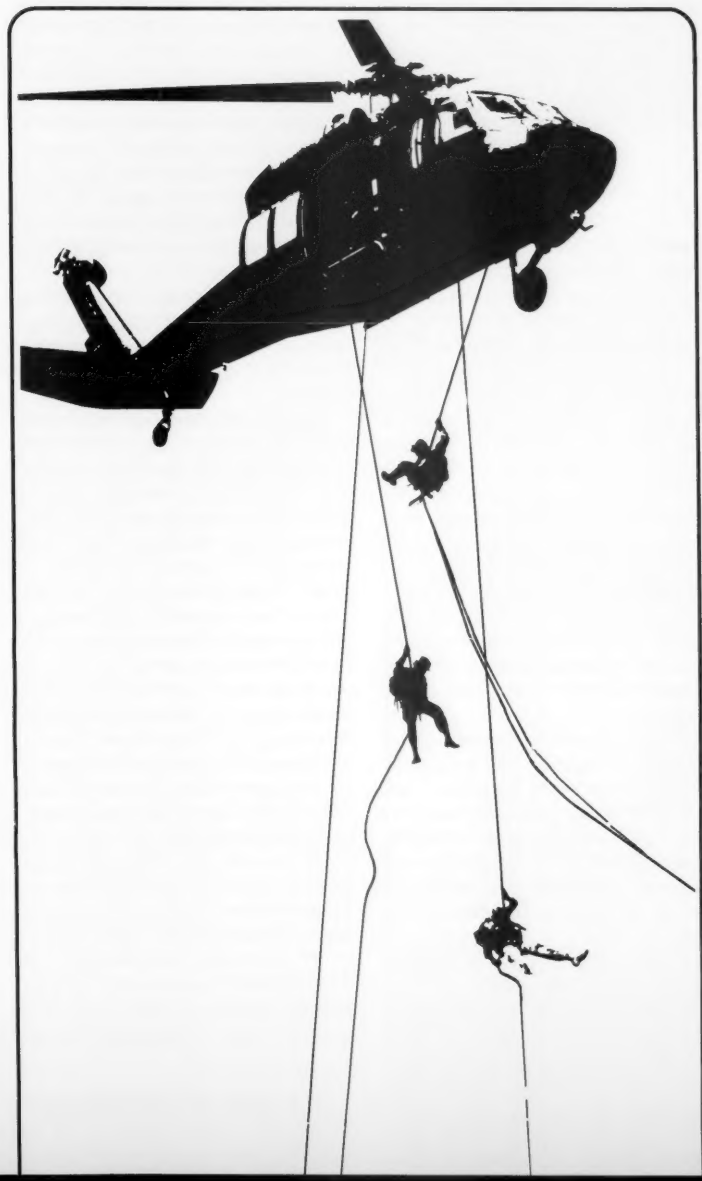
In the peacetime environment, this arrangement will greatly facilitate training for all units—especially the two lift battalions which heretofore were spread too thin in their efforts to support all three brigades and concurrently to respond to other short-fused taskings. The greatest value of the system, however, will be realized in wartime:

- It provides unprecedented flexibility and responsiveness in that a mechanism exists in all three brigades to facilitate the rapid massing and shifting of aviation assets to meet tactical requirements throughout the division sector.
- It assures that combat aviation command, control and planning functions are performed by the best qualified personnel, that is, combat aviators.
- It maximizes the use of available command and control headquarters, thereby ensuring that the span of control of ground elements is not exceeded.
- It relieves ground commanders and staffs of aviation-related burdens, thereby permitting their total focus on fighting the battle on the ground.

As can be seen, the system described is modeled after field artillery doctrine: Each maneuver brigade has a DS aviation battalion capable of planning support and

commanding and controlling whatever aviation resources are allocated to the brigade. The medium lift battalion (CH-47) is normally retained in general support of the division, though portions of it may reinforce DS battalions as required. The field artillery has a well established responsive "Long Red Line" of agencies and communications channels to translate the request for fire support to "shrapnel on the target." In a matter of seconds or minutes, rounds are on the way. So too must combat aviation have a responsive "Dark Blue Line" of agencies and communications channels to translate the request for aviation support to "aircraft on-station." As with the field artillery, aviation support is extremely time sensitive. Aviation must be capable of reacting within seconds and minutes. The Dark Blue Line starts at infantry company level and goes through each succeeding level through division.

Troops from the 101st Division rappel from the UH-60 Black Hawk



One or two specially trained, radio-equipped pathfinders are assigned to each line company to respond to the company commander's requirements for aviation support. They can call for and control combat aviation, assist in PZ/LZ and slingload operations, and perform other aviation-related services as directed by the company commander. In the heat of battle, the company commander will be the busiest officer in the division; he simply will not have the time to get bogged down with time consuming radio transmissions, etc. This combat aviation team (CAT) will alleviate many of his burdens, thereby freeing him to focus on fighting the battle and leading his troops. In a simplistic way, the CAT is the aviation sequel to the artillery FIST (fire support team). At infantry battalion level, an aviator (ideally a captain) from the supporting aviation battalion, an RTO/driver with vehicle and radios, and pathfinders form the combat aviation party (CAP). The CAP provides the capability of calling for and controlling combat aviation in the battalion sector and assists the battalion in planning aviation employment. In addition, this aviator with line pilot experience as a flight leader, will assist in pulling together the efforts of the S-3, S-3 air, fire support officer and U.S. Air Force liaison officer to ensure as enhanced an air assault operation as possible. An important side benefit generated here is that as line pilots are rotated through this critical function, they experience firsthand, and from ground level, the problems that result from sloppy integration of aviation support. In the future, as they return to their normal duties in their own units, this added ex-

perience makes them more effective operations officers, platoon leaders and flight leads. Also, since the CAP officer will normally come from the aviation company that has air mission command responsibility for the battalion that the CAP is supporting, close and continuous liaison exists between him and his parent aviation unit. Missions can be anticipated, reaction times decreased, briefings conducted quicker (en route if necessary), and missions accomplished with more efficiency. At brigade level, the aviation headquarters colocates with the brigade headquarters and forms the Combat Aviation Control Center (CACC)—the single point of contact to the brigade commander for all aviation matters in support of the brigade's mission. Exchange of information is facilitated with emphasis on up-to-date intelligence summaries, and reaction times are dramatically improved. At division level, the aviation group headquarters provides a similar function to the division commander. CATs, CAPs and CACCs are tied together by means of combat aviation nets (CAN)—nets separate from the task force's command channels and which can be monitored by all members of the combined arms team from company to division.

The system described is new, is by no means perfected in terms of efficiency and is undergoing continuous refinement. While in garrison, each aviation battalion headquarters establishes one-on-one relationships with its respective infantry brigade. Aviation personnel at all levels become intimately acquainted with supported brigade/battalion personnel and unit SOPs, and vice versa. This facilitates tremendous opportunities to truly integrate aviation and infantry units into one combined arms team, the result being a cohesive, *true* air assault force, rather than just an "airmobile" force, wherein any one of the infantry battalions may be supported by any one of the aviation units as missions are tasked out on a random basis. Aviation units are currently organizing "mobile training teams" to pitch standardized briefings to supported elements. The briefings will be informal and informative in nature and may be given to either an entire battalion of troops or geared for presentation to company officers and battalion staffs. They will explain how aviation units are organized and equipped and what their true capabilities and limitations really are, e.g., expected sustained availability rates, surge rate capability, reaction times, allowable cargo loads, fuel requirements, aviation training requirements, etc. Infantry units in turn will reciprocate.

When engaged in field activities, aviation battalions will habitually support the same brigades. Lift companies will habitually support the same battalions of a brigade and will continue to assume air mission command responsibilities for all missions conducted in the battalion's sector. Whenever an aviation unit moves into an area of operations, it does not take long for the commander, his operations personnel and flight leads to become intimately familiar with the supported battalion's sector due to constant overflights and the ability to monitor numerous frequencies on aircraft radios. As priorities are switched along the division's front and aviation companies are shifted to reinforce each other, the commanders and flight leaders are ideally postured to assume operational control of reinforcing units, whether lift, attack or medium lift, and to quickly meet mission requirements due to their familiarity with the terrain, enemy situation, and status and disposition of friendly units being supported. Aviation units' responsiveness and flexibility allow the commanding general a wide range of options on the use of his aviation resources. Whether it is AH-1s from the attack battalion or cavalry squadron reinforcing each other, or lift companies "ganging up" for one big lift, aircraft can be shifted rapidly across the division's front to meet any tactical requirement. This feature, perhaps above all others, is the division's most outstanding and unique capability.

As with all Army divisions, the 101st continues to train hard with combat readiness as its first priority. Due to turnover rates and real world missions, recurrent training, strategic deployment, readiness and field training exercises are a way of life at Ft. Campbell. During the past year, some extremely challenging, tough, realistic training was conducted which maximized the full potential of the division's aircraft. Unfortunately, knowledge gained from exercises is highly perishable; and as personnel depart the division, so too does much of the experience base. Flight leaders and senior pilots-in-command do not just grow on trees, nor do good experienced infantry company commanders or squad leaders. Good training breeds them. When the opportunity to get the new guy's feet wet presents itself, it sometimes becomes necessary to remind ourselves not to get too excited if a pilot being groomed for

flight lead didn't juggle all the balls the first time and circled his LZ before landing, or if the new infantry company commander just coming off a night raid had a confused PZ. We must expect, profit by and underwrite mistakes as we train our junior leaders. Another reminder, and an important one: Whether in training or in war, many aviators see and understand what is happening as events unfold on the ground as well or better than many ground commanders and staff officers. Rarely, however, is input solicited from the aviation community, especially at ARTEP (Army Training and Evaluation Program) after-action reviews. If aviation observations and insights are not integrated into formal debriefings, the loop is not closed on any air assault operation. Commanders and staff officers imbued with an "I call, you haul" mentality really do not understand combined arms integration and true air assault.

One last point deserves mention. During the recent joint readiness exercise, Brave Shield '80, which pitted air assault forces against a larger mech-armor force, numerous and varied scenarios were arranged and conducted. The system for controlling combat aviation described in this paper was played exclusively and with great success. The vaunted A-10 and AH-1S combination with its synergistic effect worked to perfection as the division's knockout punch. In one scenario, a tank battalion was placed under operational control of the air assault brigade, and an extremely potent force resulted—a force that was capable of generating awesome combat power, could operate day and night in all conditions of visibility or weather, and one which could operate without regard to terrain obstacles. This combination created a multiplier effect perhaps even greater than that of the A-10/AH-1S combination. In some future conflict, the corps commander who has an opportunity to cross-attach his armored and air assault divisions will have a task force with unprecedented combat power—a capability which probably has not escaped the Soviets either, considering their capability to merge frontal helicopters with a tank army's assault. This reality highlights a critical equipment deficiency in the U.S. Army. We are not prepared to meet and defeat the enemy helicopter threat. A pressing need exists now for helicopters to have the capability to fight helicopters, thereby freeing air assault or attack helicopter forces to accomplish their mission (and let's not hear any of that "well, it's on the drawing boards"). The need is now, and it is urgent.

As the air assault division faces the challenging decade ahead, it continues innovative training with its state-of-the-art aircraft and its three air assault brigades. It will remain a powerful force dedicated to developing tactics and techniques to maximize its strengths against its adversary's weaknesses and conversely to minimize its vulnerabilities to enemy strengths. The 101st Airborne Division (AA) strategically and tactically mobile, firepower heavy and highly trained, stands ready to assume any mission, anytime, anywhere, against any enemy. One day, we will stand on our objective, wipe our bayonets clean, tie down our rotor blades and shake hands with our fellow team members on a job well done. Air Assault!

NOTES:

1. Briefing as presented by MG Jack V. Mackmull, CG of the 101st Airborne Division (AA), to a 101st Aviation Group Commanders Call, Ft. Campbell, KY, July 1980.

2. After-Action Review of JRX Brave Shield '80 as conducted by COL Peter M. Dawkins, then 3d Brigade Commander, to the Command Group of the 101st Airborne Division (Air Assault), September 1980.

The UH-60 Black Hawks of the 101st have the speed and maneuverability needed to move troops and survive on the extended battlefield

Super Safety Training Weekend...or why ruin attitudes by wasting a good weekend of flying with classes

Captain John W. Simmons

IT IS NEVER enjoyable to hear, "Your unit has a problem, ASO. What are you going to do about it?" Particularly when the unit has 12 years of flying without a damage-costing mishap, an average age of 34, and an average of 1,800 flight hours. Although the unit passed the ARMS inspection, a question like that tends to unnerve a newly assigned ASO.

This is a story with a happy ending, if it can be said that safety stories have an ending. This is a story of how *attitudes* are critical if a true safety philosophy is to permeate every aspect of the unit's operations. This is a story that illustrates one unit's approach to solving a safety management problem.

The management problem, quite simply, is four small USAR aviation units, each drilling on a different weekend, with completely different missions, all using the same aircraft, each unit individually striving to conduct a comprehensive safety program. If only those efforts could be consolidated, then we could . . .

Effective management technique involves three steps: problem recognition, solution identification, and implementation. Managing a meaningful and comprehensive safety program is no different from managing any other program. Since the ARMS team had identified the problem and possible solutions, two-thirds of the work was done. WRONG! The fun was to begin.

The recommended solutions included a proposal for a consolidated safety meeting on an annual basis. The first hurdle then was how to consolidate drill weekends. If all units drilled on the same weekend, then limited aircraft would reduce training accomplished. The final solution was a no-flying drill weekend. That's right, one weekend drill with all units in attendance, devoted solely to conducting as many nonflying training and safety classes, inspections, and exercises as possible and done on an annual basis (each unit could then accomplish the quarterly requirements).

To devote a weekend to safety, a timely theme was needed. Since two of the units were going to go through NOE qualification during annual training, with one unit responsible for an airfield and the other conducting aviation ARTEPS, the NOE theme was selected. The involvement of as many people as possible with an interest in aviation safety was strived for. An ambitious undertaking such as this has to be sold to the units as well as the chain of command. The participation of the division commander was critical.

Since the main theme was NOE, the main attraction would be a guest lecturer from the U.S. Army Safety Center. LTC James Kenton, chief of the Aviation Technology Division at the Safety Center, was the centerpiece around which the weekend was planned. In two days, the following was accomplished:

- A comprehensive presentation by LTC Kenton on safety in general and NOE in particular.
- Quarterly aviation safety meeting.
- Quarterly standardization council.
- Quarterly aviation safety council.
- Weather briefing by MSG Gaudreau, SWO, USAF.
- CBR practical exercise (Fort Eustis gas chamber).
- Aeromedical class by the flight surgeon, CPT Paschal, MD.
- Demonstration of crash rescue (preaccident plan) by CW4 Pete Smith, FAAF ASO.
- Quarterly safety meeting (EM) conducted by CPT Ambrose, safety officer, 80th Division.
- Threat briefing by MAJ Jack Stacy, assistant G-2, 80th Division.
- Egress practical exercise (simulated shutdown of the aircraft and egress) conducted by CW4 Terence Abbott.
- Three-station ALSE practical exercise. CW2 Steve Gibson conducted a survival radio practical exercise, SGT Mike Stubbs inspected the individuals' aviation life support equipment, and MSG Tom Graves inspected the survival vest and gave instruction on its use.
- Briefings on selected subjects too numerous to mention (e.g., OHR, SOF, PRAM, FOD, etc.).

Tables 1 and 2 show the scope of a comprehensive safety program (tailored for our unit).

Participation was excellent. It would be nice to know that a quest for knowledge about aviation safety was the motivator. However, it appears that the oyster roast planned after training on Saturday did as much to promote safety as the classes. During the social hour all the attendees had a chance to discuss safety with the experts such as LTC Kenton, Dr. Paschal, LTC James, and CW4 Smith. It is interesting to note that much of the dialogue with the division commander at the social was safety related.

Out of a demanding schedule, several hours of the division commander's time was devoted to insuring that the weekend was a success. Late Saturday afternoon, the commander spoke to the attendees, telling them of his interest in aviation safety, his concern for the men and women in the units, and his philosophy on mission accomplishment in a safe manner.

Two observations, which are perhaps the reason for this article, can be made. Safety is an *attitude.* The two observations relate to *attitude*, first the commander's *attitude*, and second the aviators' *attitude.*

A division commander's *attitude* can be expressed in a policy letter, but when he takes time to travel to attend a safety meeting, to address the units on safety, and to participate in a social hour, then his *attitude* is personally conveyed to each attendee.

An aviator's *attitude* is influenced by his commander's *attitude.* The safety program may exist, but it is only operational through the aviator if he incorporates the *attitude* of his commander. In our unit, all aviators, crewmembers, and related personnel personally know the *attitude* of their commander, and the coming year's safety program will be devoted to reminding everyone of that *attitude.*

Even though a Reserve unit is made up of people with diverse backgrounds and civilian occupations, we can accomplish the mission with the right *attitude.*

Captain Simmons is the aviation safety officer of the 80th Division (Training), USAR. After serving on active duty for 5 years, he spent 1 year with D Company, 26th Aviation Battalion, Florida National Guard, as a scout pilot and has been with the 80th Division Aviation Section for 2 years. He is employed as a civilian attorney with the Applied Technology Laboratory, USARTL, AVRADCOM.

TABLE 1.—Required Safety Classes

Egress training	ALSE/survival/first aid	Mapreading	Quality Deficiency Report
Fire prevention	Aviation safety meeting	OHR/AIRMISS	Teardown Analysis Program
Weather briefing	EM safety meeting	SOF	Army Oil Analysis Program
Hearing conservation	Aeromedical training	PRAM	Weight and balance
FOD prevention	Range briefing	CBR gas mask	Forms and publications

TABLE 2.—Required Safety Instructions/Reviews

Review and telephonic check of preaccident plan	Review unit training with training officer, operations officer, and commander to insure that training is directed towards known deficiencies
FOD inspection	
Aviation resource survey	
Review of unit SOP	
Review of applicable safety regs	Fly with crews to determine standardization/operational readiness
Review reading file, compare to TCFE file	
Review safety bulletin board	Monitor POL/refueling operation
Review safety award program	Review unit orders appointing safety personnel
Observe ground and flight operations to detect unsafe practices	ALSE periodic inspection (scheduled and unannounced)
Inspect physical condition of airfield for measures, check current publications in flight planning, and inspect any other airfield activity which might impact on unit safety	Inspect safety kit and review CMI checklist
	Other inspection/review

OBSERVATION PERFORMANCE PLANNING CARD (PPC)

PREPARATION OF the Performance Planning Card (PPC) is an integral part of all missions flown by Army aviators. When proper performance planning is accomplished, the aviator can depart with a wide variety of information that is relative to the mission. Due to the modern battlefield tactical employment of observation helicopters, it is essential that all aviators have a good understanding of the computation of the PPC.

The equipment needed to complete the PPC is relatively simple. First, a TM 55-1520-228, 235, or 214 -10 has to be procured. These publications will provide the necessary charts located in Chapter 7 for completion of the form. Second, a DA Form 4887-R (PPC) with appropriate asterisk items imprinted in the left margin should also be located. (A number of field units only provide PPCs for one type of aircraft. The asterisk items are different between UH-1 and OH aircraft.) AR 95-16 states that copies of the original 365F have to be maintained in Flight Operations, aircraft logbooks and also in the aircraft historical records. This form may be located in these locations to obtain operating weight of the aircraft at takeoff and landing. Temperature and pressure altitude may be obtained from a weather forecaster or, while operating in the field, from the aircraft's altimeter and free air temperature gauge.

The first item to be computed is the maximum torque available. To compute this value, proceed to figure 7-3, pages 7-11 through 7-14, OH-58 series aircraft, and figure 7-3, page 7-9, OH-6A aircraft. Ensure proper chart selection by comparing your aircraft's configuration with the configuration as printed on the chart (i.e., engine deice and heater off). Use of this chart is explained in detail in the left margin of the chart. Once the maximum torque value is computed, enter this value in the "single eng" column under calibrated.

The second computation required is the torque available continuous value. To obtain this information, use figure 7-4, pages 7-15 through 7-19, in the OH-58 manuals and figure 7-4, page 7-11, in the OH-6A manual. Once again, before attempting your computation, ensure the proper configuration chart is used. If computing this value for an OH-58 aircraft, the maximum continuous torque should be reduced to 79 psi (OH-58A) (85 percent OH-58C) if the value is computed above these values due to the 5-minute torque operation limit restriction imposed by the Operator's Manual. The OH-6A aircraft will be a maximum continuous torque of 70 psi. After computing this value, enter the number on the PPC under the "single engine" calibrated column.

Predicted hover torque is computed by referring to figure 7-5, page 7-23, OH-58 Operator's Manuals, and figure 7-5, page 7-3, OH-6A Operator's Manual. To determine hover power which is required by the Operator's Manuals, enter the chart at the top right labeled "pressure altitude." The entry point is determined by the pressure altitude received from the weather forecaster by obtaining the value from the aircraft altimeter. Move right to the temperature line and down vertically to your aircraft weight configuration for the mission at the time of takeoff. Move left to the desired hover height, where the hover height line intersects the gross weight computed value; move down to read the predicted hover torque. Enter these values on the PPC under "single eng" "calibrated" adjacent to predicted hover (TQ percent) and hover, OGE (TQ percent).

If passengers are expected to be transported in the aircraft during the mission, their actual weights should be obtained and added to the operating weight of the aircraft. If the actual weights are unavailable to the pilot during the premission planning phase, use the standard configuration 365Fs located in the logbook of the aircraft for these computations. The Aircrew Training Manual (ATM) requires that, when environmental/loading conditions change significantly, the aviator is required to recompute a new PPC. Since a significant change is not defined in the ATM or Operator's Manual, it is the pilot's responsibility to determine his personal significant change values. TC 1-10, "Mountain Flying Sense," defines a significant change as 5 degrees and 500 feet pressure altitude. These figures may be used as a guideline in determining your personal significant change values.

Safe pedal margin is determined by referencing figure 5-5, page 5-11, and figure 5-2, page 5-12, in the OH-58C Operator's Manual (figure 5-6, page 5-13, and figure 5-6, page 5-14, OH-58A Operator's Manual). The Operator's Manual explains the procedure for computing the Directional Control Margin Chart. If it is determined that your aircraft does not fall into the yellow area of the chart, you may assume that you do have at least a 10 percent pedal control margin and check "yes" on the PPC. However, if your aircraft's gross weight falls within the yellow area of figure 5-5, you must proceed to figure 5-2, page 5-12, OH-58C (figure 5-6, page 5-14, OH-58A). Enter the chart in the appropriate area (i.e., Area C). The left limit line of Area C is the 10 percent pedal control margin line. Read to the right Area C limit line and identify the worst possible winds conditions by tracing this line from 150 degrees at 20 knots to 087 degrees at 20 knots. The most critical wind velocity is 20 knots and greater from 150 degrees to 087 degrees. If you operate the aircraft at a high gross weight, marginal power conditions, and a slow rate of airspeed and exceed 20 knots of relative wind from these azimuths, the aircraft may turn uncontrollably to the right. If you determine that these wind conditions do exist, you may reduce the aircraft gross weight or alter the mission to ensure safe operation within aircraft limits.

Arrival data is required to be computed if the arrival configuration differs significantly from the takeoff combinations. This information is computed the same as the departure data except the adjusted environmental or loading conditions are used for your computations.

TC 1-137 requires that an in-flight fuel check be initiated upon entering your mission profile. The airborne fuel check must be completed 15 to 30 minutes after the initial check was recorded. For PPC purposes, the start/stop time, rate of consumption, burnout time and 20-minute (VFR) fuel reserve time must be recorded on the PPC in the appropriate blanks.

The optional and cruise data is not required to be completed during your premission planning. If this information is computed, a large amount of information is made readily available to the aviator which may be useful in performing his mission.

The Performance Planning Card was devised to aid you, the aviator, to determine the operational limits of the aircraft under specified conditions. Completing and using the card will enhance your unit's mission capabilities and provide essential information to the pilot. Plan your missions thoroughly and fly them safely.

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker Hot Line, AUTOVON 558-6487 or 205-255-6487 and leave a message

CONNECTION

ACTAAT

Aviation Center Training Analysis and Assistance Team

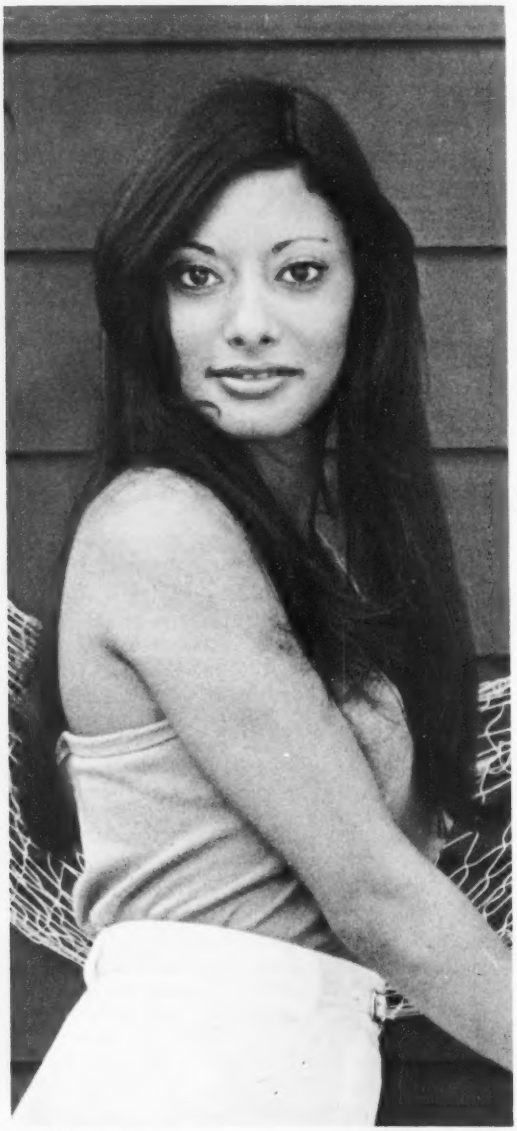
LANDING UPDATE

ISSUE: In accordance with Aircrew Training Manual 1-137, aviators are required to verify the Performance Planning Card (PPC) predicted power during 4 feet and out of ground effect (OGE) hover checks. If both checks are not in agreement with predicted requirements, but actual indications remain within aircraft limits, can flight be legally continued? Instructor pilots report that 95 percent of the 4 feet hover checks and 40 percent of the OGE hover checks do not agree with predicted requirements in the OH-58A. Are the charts incorrect?

COMMENT: TC 1-137, Task #2002 states that the pilot is responsible for ensuring that the flight can be safely conducted by: (1) reducing the load, (2) reverifying the performance planning card, and (3) performing an OGE hover check. If aircraft limitations are not exceeded, the flight may be made. The charts in the operator's manual are correct. However, there are numerous conditions that affect hover power; i.e., wind, dirty engine, pilot technique, etc. (Directorate of Evaluation and Standardization)

PEARL'S

Personal Equipment And Rescue/survival Lowdown



Debbie Bacle photograph by Tom Greene

New SPH-4 Earphone

We have been receiving calls and letters from personnel in the field regarding a new style earphone which is now being installed in the SPH-4 flight helmet. The new earphone is the Electro-voice Model 986, H-143A/AIC, and is easily identified by the 19 holes in the speaker cover. According to the manufacturer, this new earphone is waterproof and has a much better frequency response than the older H-143/AIC. This allows the crewmember to wear earplugs with the helmet and still be able to hear the radios and intercom without difficulty.

Although the old earphone (NSN 5965-00-615-0104) is still acceptable for use, the new H-143A/AIC earphone obviously has certain advantages which may make it preferable for use by Army aircrew personnel. It is available from S9E under NSN 5965-01-094-6602 at a cost of $10.27 each.

Point of contact at this office is Mr. Tommy Vaughn, AUTOVON 693-3307 or Commercial (314) 263-3307.

Camouflage For Helmet

Air Force Technical Order (TO) 14P3-4-112 (Service Instructions for Flying Helmet Assemblies, Types HGU-2A/P and HGU-26/P) lists a camouflage film which may be applied to protective helmets used by aircrew personnel in jungle or tropical combat areas. According to the TO, this film (decal) consists of about 2.5 square feet of camouflage printed elastomeric film with a pressure-sensitive adhesive backing. The decal is cut into irregular shaped pieces and applied to the outer surface of the helmet shell and visor housing.

Many Army aircrew personnel have expressed an interest in using the camouflage film on the SPH-4 helmet in certain combat situations. This film is already used by both the Air Force and the Navy and is currently being evaluated for adoption by the Army. Personnel wishing to obtain the camouflage film now may order it "off-line" from FPZ under NSN 8475-00-

173-9054. It comes in a package of three sheets and costs $1.14 for each package.

Point of contact at this office is Mr. Tommy Vaughn, AUTOVON 693-3307 or Commercial (314) 263-3307.

Supply Catalog Problems

Two problems have arisen regarding Supply Catalog (SC) 1680-97-CL-A08 (Sets, Kits, and Outfits Components List for Survival Kit Seat, Aircraft: Cold Climate, Hot Climate, and Overwater), dated 21 August 1981.

The first problem involves which publications are superseded by this SC. The document cover indicates that it supersedes SCs 1680-99-CL-A08 and -A10 for the cold climate seat survival kit and overwater seat survival kit, respectively; it does not indicate that it supersedes SC 1680-99-CL-A09 for the hot climate seat survival kit. It would thus appear that there are two SCs in effect for the same survival kit. This is not the case. According to personnel in the Data Management Branch of the Directorate for Materiel Management, TSARCOM, SC 1680-97-CL-A08 *does* supersede SC 1680-99-CL-A09 as well as the -A08 and -A10, even though that fact is not indicated on the cover.

The second problem involves one component of the survival kits which is not listed in the SC, namely, the first aid kit. According to personnel in the Sets, Kits and Outfits Branch of the Directorate for Materiel Management, TSARCOM, the first aid kit (NSN 6545-00-823-8165) was deleted from the SC because the supply point was unable to obtain it for survival kit assembly due to the controlled substances which it contains. However, personnel in the field should still order the first aid kit through their local medical facility and include it as a component of their seat survival kits.

Point of contact at this office is Mr. John Chubway, AUTOVON 693-3307 or Commercial (314) 263-3307.

For the edification of everyone concerned, we furnish the following list of current ALSE supply catalogs.

SC 1680-97-CL-A02
Individual Hot Climate Survival Kit
NSN 1680-00-973-1861

SC 1680-97-CL-A03
Individual Cold Climate Survival Kit
NSN 1680-00-973-1862

SC 1680-97-CL-A07
Individual Vest Survival Kit
NSN 1680-00-205-0474 (Large)
NSN 1680-00-187-5716 (Small)

SC 1680-97-CL-A08
Aircraft, Cold Climate Survival Kit Seat
NSN 1680-00-148-9233

SC 1680-97-CL-A08
Aircraft, Hot Climate Survival Kit Seat
NSN 1680-00-148-9234

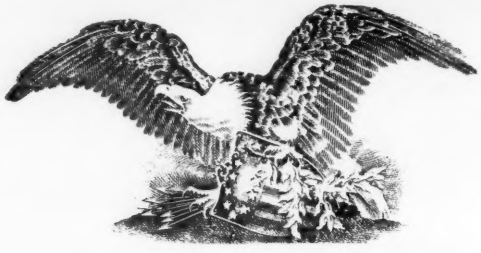
SC 1680-97-CL-A08
Aircraft, Overwater Survival Kit Seat
NSN 1680-00-140-3540

SC 1680-99-CL-A04
Individual Overwater Survival Kit
NSN 1680-00-973-1863

SC 4220-90-CL-N01
Inflatable, 7 Person Capacity Mark VII Life Raft
NSN 4220-00-245-7751

SC 8465-90-CL-P02
Individual Vest Type Survival Kit
NSN 8465-00-177-4819

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120 or call AUTOVON 693-3307 or Commercial 314-263-3307



Life Support Equipment Insurance Corporation

This policy is issued to *Your Name*. It is payable whenever the need arises. The face value of this policy is Your Life. The provisions under which the policy is issued are as follows:

SECTION I: This policy guarantees, in the event of an aircraft accident, which places the insured in a survival situation, to do the following:

A. Separate the insured from his aircraft by means of ejection or bailout.
   Note: In the event of ditching or crash landing, it will be the responsibility of the insured to get out of the aircraft using the best available means.
B. Return the insured to Terra Firma, in the event of ejection or bailout, by means of a nylon conveyance commonly known as a parachute.
C. Provide the insured with sufficient equipment to enable him to survive wherever he lands (water, desert, tropics, or mountains).
   Note: It is the responsibility of the insured to use this equipment to—
   1. Build adequate shelter from the elements;
   2. Provide himself with additional food and water;
   3. Use the signaling devices to best advantage for attracting rescue personnel.

SECTION II: This policy may not be redeemable:

A. If the insured fails to take advantage of all life support continuation training made available to him. Such failure includes, but is not limited to:
   1. Annual training.
   2. Training in excess of annual requirements.
      Note: This also includes but is not limited to commanders, wing personnel, life support officers, crew chiefs, and flight mechanics.
B. If the insured fails to take advantage of all equipment and assistance offered him by life support specialists prior to each flight. This includes but is not limited to:

1. Failure to preflight all equipment as outlined in current tech orders and regulations and as taught or published by the life support equipment section. Equipment is interpreted to mean:
   a) Life preservers
   b) Survival kits
   c) Emergency signaling devices
   d) Parachutes
   e) Helmets
   f) Oxygen masks
   g) Any and all additional equipment provided the crewmember prior to flight
2. Failure to notify the life support specialist of any equipment problems.

C. If the insured fails to wear proper clothing for each mission. This includes but is not limited to:
   1. Wearing summer flight suit during winter operations, or failure to wear winter underwear when winter flight suits are not available;
   2. Leaving flight jacket in the life support equipment section while insured is engaged in flight;
   3. Failing to wear flying gloves;
   4. Wearing low-quarters, wellingtons, Probst boots, or other unauthorized footwear while engaged in flight.

D. If the insured misuses or abuses life support equipment. This includes but is not limited to:
   1. Throwing or mishandling of helmets and masks;
   2. Laying equipment on wet or oil-covered ramps,
   3. Using equipment improperly for seats or pillows;
   4. Leaving equipment exposed to weather, children, or other types of pestilence;
   5. Using auto as a wall locker.

SECTION III:

A. This policy may become null and void if the insured, through his own negligence, invokes any of the items in Section II.

B. The company will do all within its power to help the insured meet the requirements of this policy. The company further assures that it will in no way willfully cause this policy to be canceled. However, the insured may cancel at any time.

Signed: _____

Life Support Specialist
Company Representative

Sound like a good policy? You bet your life it is! If you are interested in further details, see our company representative today. You can find him in any life support equipment section.

Aviation Digest thanks Airscoop for permission to reprint this article

REPORTING FINAL

Late News From Army Aviation Activities

FROM WASHINGTON

Vice Chief of Staff Nominee. General John A. Wickham Jr. has been nominated by President Reagan to serve as the Army's next Vice Chief of Staff. He is now Commander in Chief, United Nations Command/Commander in Chief, Combined Forces Command/Commander, U.S. Forces, Korea, and Commander, 8th U.S. Army.

General Wickham, who has more than 31 years of active commissioned service, is slated to succeed General John W. Vessey Jr., who has been nominated as the next chairman of the Joint Chiefs of Staff. **(ARNEWS 262)**

Smithsonian Display. A new exhibit commemorating the 1981 World Helicopter Championships is now on display in the Smithsonian Institution's National Air and Space Museum. Included are the individual and team trophies won by the U.S. helicopter team in the world competition last August in Poland.

The exhibit is open 7 days a week from 10 a.m. to 5:30 p.m. and is located at the entrance of the Vertical Flight Gallery on the first floor. **(ARNEWS 230)**

FROM TRADOC

Term Clarification. Recently there has been a proliferation of terms that conceptually describe battlefields on which modern forces may be required to fight. A brief description of those terms follows:

• *Integrated Battlefield* is a generic description of a battlefield where either combatant has employed or could employ nuclear, chemical and conventional munitions, singly or in combination. This definition has now been expanded to include electronic and directed energy weapons.

• *Extended Battlefield* deals primarily with war in areas of the world where there are large numbers of relatively modern, well equipped forces that use Soviet-style doctrine and tactics. *Extended Battlefield* describes the need to bring to bear the full range of friendly capabilities, to include deep-ranging sensors and weapons, with the goal of collapsing the enemy's will to fight. Enemy units not yet in contact are brought under deep attack in order to destroy, disrupt and delay their scheduled commitment to battle. The concept recognizes that the deep and the close-in battles are inseparable and must both be prosecuted within the commander's overall objectives.

• *AirLandBattle* ties together ideas from concepts for the *Integrated* and *Extended Battlefields* and applies them conceptually to the battlefield visualized for the 1980s. The main theme is to win through early initiative of offensive action by joint air and land forces. The key to modernization as set forth in this concept is based on Division 86 materiel and force structure requirements. While full implementation of the *AirLand Battle* concept is scheduled by 1986, many of its ideas can be implemented today with current assets.

• *AirLand Battle 2000* is an evolutionary maturing of the precepts of the *AirLand Battle*, describing trends and environment for the Army for the year 1995 and beyond. The essence of this concept is agility whereby the enemy's will to continue the conflict is collapsed by presenting him with new tactical situations faster than he can react. This concept brings to fruition the guidelines of the Concept Based Requirements System whereby conceptual notions dictate the development of systems and forces necessary for implementation. The overall (umbrella) concept for *AirLand Battle 2000* will be supported by eight subconcepts which will describe the battlefield in terms of functional areas. **(ODCSDOC)**

Safety Winner. Sergeant First Class Gerald L. Johnson is the first enlisted person to receive the James H. McClellan Aviation Safety Award that is presented annually by the Army Aviation Association of America. He is NCOIC of the Tri-Service Aviation Life Support Equipment Retrieval Program at the Army Aeromedical Research Laboratory, Ft. Rucker, AL. Throughout the Army SFC Johnson is known as "Mr. Helmet" because of his dedicated efforts to improve helmet safety for aviation personnel. He is also the recipient of the 1981 Survival and Flight Equipment Association General Spruance Award for his contributions to safety through education

Photo by Boeing Vertol

Historic first delivery of the initial production CH-47D Chinook was made 20 May at Boeing Vertol Company, Ridley Township, PA.

Current Army plans are to modernize 436 earlier model Chinooks to CH-47D status during the next 10 years. The remodeled aircraft provides needed versatility for a variety of rugged combat and combat-support missions, including troop movement, artillery emplacement and battlefield resupply. The 50,000 pound gross weight CH-47D has double the payload capability of the earliest model Chinooks

photo by SP5 Cindy Murphy

The Honorable James R. Ambrose, Under Secretary of the Army, right, learns about the AH-1S (Fully Modernized) Cobra from Captain (P) William H. Bryan during a 2-day orientation visit (29-30 April) to the Army Aviation Center, Ft. Rucker, AL. Another of the Under Secretary's activities was to present certificates from Governor Fob James of Alabama to six pilots of the World Helicopter Championship Team who are stationed at Rucker, naming them Goodwill Ambassadors for Alabama. Those recipients were Chief Warrant Officers, CW3, Roger A. Bodwell, John J. Durkin, Robert L. Miller, Irvin B. Starrak, Robert A. Stolworthy and Norman Thompson

FROM FORT EUSTIS

ALSE Course. The Army now has its own Aviation Life Support Equipment (ALSE) Course. It opened in January at the Army Transportation School.

The course is designed to train selected personnel in inspection, repair and resupply of ALSE equipment. Since many items of that equipment are controlled by other services, supply procedures are stressed along with hands-on training.

Upon completion of the 5-week school, students will be awarded a special skill identifier of Q2 and will be familiar with maintenance of all current items of ALSE equipment.

Twelve quotas are available for each class and should be requested through normal channels.

(ATSP-DT-AS)

FROM FORT RUCKER

New Correspondence Course. Enrollment for a new correspondence course, Army Air Traffic Control Duty Positions, being offered by the Army Aviation Center will be accepted after 1 July 1982. The course consists of six subcourses totaling 26 credit hours: Control Tower Operator (CTO) Orientation, Flight Data, Ground Control, Local Control, Nonradar Approach Control and Radar Approach Control. Separate enrollment in any of the subcourses is not authorized.

Course objective is to provide students with a working knowledge of rules, regulations and procedures required in the performance of ATC duties. It can also be used as preparation for the Federal Aviation Administration CTO written examination.

Enrollment is open to civilian personnel and to military personnel (whose aptitude area scores meet the prerequisites for Advanced Individual Training for MOS 93H or 93J) who require refresher or preparatory training, are considering MOS reclassification to 93H or 93J, or who are anticipating assignment to the ATC field.

To enroll, send completed DA Form 145 to the Army Institute for Professional Development, Army Training Support Center, Newport News, VA 23628.

(ATZQ-TD-CD)

photo by SSG Earl W. Bruster, MNG

Warrant Officer, WO1, Diana M. Hensley is the only woman in the Missouri National Guard who is rotary wing rated, is the MNG's youngest pilot and is the first female warrant officer in the state. She received her Army aviator rating in February and is assigned to the 135th Engineer Group, MNG, Cape Girardeau, MO, with duty as a UH-1 Huey pilot for the 868th Medical Detachment of Jefferson City, MO

VIEWS FROM READERS

Editor:

In recent months, the term "forward line of own troops" (FLOT) has appeared in a number of your articles. Is this valid U.S. Army terminology or did someone with nothing else to do believe that "forward edge of the battle area" (FEBA) was obsolete and did they have to dream up a new term? What are the differences between FLOT and FEBA and how do they affect us as tactical planners? Thank you.

CPT Michael J. Morrison
Montana Army National Guard

• The battlefield is divided into three areas: The main battle area (MBA), the covering force area (CFA) and the division rear area. The leading edge of the MBA is known as the forward edge of the battlefield or "FEBA." This line separates the MBA from the CFA. The leading edge of the CFA is known as forward line of own troops or "FLOT." Friendly troops may operate beyond this line, but there would normally be no prepared positions beyond the FLOT.

Editor:

As an aviator in a forward deployed combat aviation battalion in Europe, I read the article "The Leak in the Soviet Air Defense Umbrella" in November's *Aviation Digest* with great interest. I tend to agree with the author, Major Frank E. Babiasz, that the threat is overstated and in all reality the threat will react to tactical innovations which we develop for use in combat. Due to this, I have concluded that the threat will try to counter any tactical innovation by massing larger numbers against friendly forces, as they usually do. I believe that this analysis of ADA threat is on the right track and that it should be the major thrust of a unit's threat training program.

Personally, after spending more than 4 years flying in Europe, I find one element of the enemy antiair threat grossly overlooked, that of the individual soldier. Flying in the NOE environment in thin-skinned aircraft, I fear the individual soldier dismounted more than those mounted. I can train to obtain a better knowledge of the ADA threat and tactics, but flying in and around ground forces in close proximity will bring ground fire to bear on us and I do not train with enough emphasis on this.

I am looking forward to vast improvements with the APR-39 and thus in our ability to identify the threat. Those with whom I have been associated have intensified our training in regards to the APR-39 by using the GRETA now deployed in Europe. Yet there is no way to train against the ground threat except for increased emphasis on premission planning and NOE tactical flying.

I have one thing to point out specifically about the article, other than threat training and analysis, and that is the article typifies Army Aviation thought in this day and age. Your article stresses the role of the scout and attack helicopter on today's battlefield. Let us not forget the importance of the totality of Army Aviation in moving troops, supplies, ammo, fuel and even TOW teams about the battlefield. That scout and attack helicopter is only one element of Army Aviation, "the combat multiplier." I'm writing this reply because I enjoyed your article, yet I think it's time that all aviators express and think about the totality of Army Aviation and not become narrow minded.

As a commander of an aviation company, I believe it is extremely important that when an aviator walks into a ground TOC that he represents Army Aviation and not just another gun pilot, scout pilot or Huey driver. In all aspects of Army Aviation, tactical concepts, etc., we must plan and talk and think about the totality of Army Aviation.

MAJ Stephen K. Cook
E Company
3d Aviation Battalion (Combat)
APO New York

Editor:

LTC (P) James Lloyd's excellent article "Who's Going To Teach Aviators How To Fight" in the February issue of the *Army Aviation Digest almost* described the guts of our AirLand Battle training problem.

Yes, Army Aviation is a combat arm like Infantry, Armor, Artillery and Air Defense. But Army Aviation is more than a combat arm. It is a combat maneuver arm like Infantry and Armor. By fire and maneuver, Army Aviation directly engages the enemy.

LTC Lloyd stated the case quite well for training Infantry and Armor officers to properly employ aviation assets. One more step is needed. Army aviators must be taught how to employ all elements of the AirLand Battle. As the Infantry, Armor and Aviation officer matures, the very cream of the crop should progress to command of brigades and divisions.

The purpose of this combined arms training is not to give equal opportunity in the personnel system. It is to ensure that the most capable maneuver arms commanders lead on the battlefield!

MG Ben L. Harrison, USA (Ret)
Belton, TX

Articles from the *Aviation Digest* requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor, *U.S. Army Aviation Digest*, P.O. Drawer P, Ft. Rucker, AL 36362

"Hangar Talk" is a quiz containing questions based on publications applicable to Army Aviation. The answers are at the bottom of the page. If you did not do well, perhaps you should get out the publication and look it over.

TC 1-62

AVIATION LIFE SUPPORT EQUIPMENT (ALSE)

TM 10-8415-206-13

OPERATOR, ORGANIZATION, DIRECT SUPPORT MAINTENANCE MANUAL—SPH-4 FLIGHT HELMET

MSG Jackson J. R. Ooten
Directorate Of Training And Doctrine
U.S. Army Transportation School
Fort Eustis, VA

1. Equipment improvement recommendations (EIR) concerning ALSE will be submitted in accordance with:

A. TC 1-62
B. TM 38-750
C. ALSE Special Instructions Booklet

2. All Army ALSE specialists are trained in Air Force and Navy schools.

A. True B. False

3. The SRU-21/P survival vest should contain all of the following except:

A. Compass, magnetic, unmounted
B. Fishing gill net
C. Compass, magnetic, lensatic
D. Whistle, cork ball w/lanyard

4. BA-156/U batteries are used in the AN/PRC 90 survival radio. These batteries must be recharged:

A. After each use
B. Never
C. Every 90 days
D. When they are weak

5. Every Army survival kit contains a search and rescue survival manual. What is the number of this manual?

A. TC 1-62
B. TM 9-1300-206
C. AFM 64-5
D. TO 145-102

6. Body armor currently in use is capable of defeating small arms fire and armor piercing projectiles up to:

A. 223 caliber
B. 50 caliber
C. 30 caliber
D. 45 caliber

7. The SPH-4 helmet is available in three sizes: small, medium and large.

A. True B. False

8. The AN/PRC-90 radio, when operated in AM voice mode, has a maximum range between ground units of:

A. 60 miles
B. 1 mile
C. 80 miles

9. First aid kits will be inspected in accordance with:

A. Enclosed packing lists, supplied w/kits
B. TB 740-10/DLAM 4155.5, Appendix M
C. Unit SOP
D. By medical personnel only

10. Storage of individual survival vest, containing signal flares, is up to the individual who is signed for the vest.

A. True B. False

ANSWERS
TC 1-62
TM 10-8415-206-13

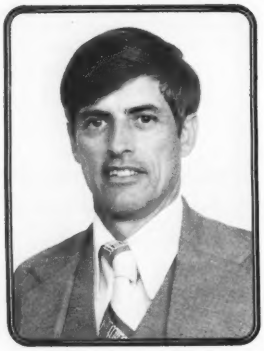
1. B TM 38-750
2. B ALSE school at Ft Eustis is now open
3. A Unmounted compass should be replaced w/lensatic
4. B Batteries are not rechargeable
5. C AFM 64-5
6. C 30 caliber
7. B Only regular and extra large
8. B 1 mile—line of sight only
9. B TB 740-10/DLAM 4155.5, Quality Control Depot Service-ability Standards, Appendix M
10. B Must be stored IAW TM 9-1300-206 w/Change 4, and DOD 5154.45, DOD Ammunition and Explosives Safety Standards

"RAPS"

Regional Accident Prevention Survey Program

Mr. Timothy Flynn

When this article was written, the author was an Aviation Safety Team Leader at the National Guard Bureau



THE ARMY National Guard (ARNG) Regional Accident Prevention Survey (RAPS) Program, NGR 385-5, dated 31 July 1980, was implemented in February 1980. This "self-help" type program was primarily established to assist the various ARNG aviation facilities in meeting their requirement to conduct an annual safety survey. This annual safety survey requirement was imposed by National Guard Regulations (NGR) 95-1 and 385-10 as a concerted effort to prevent ARNG aircraft and ground accidents. It involves all levels of command in the accident prevention effort:

—The Chief, National Guard Bureau (NGB) is responsible for the overall supervision of the ARNG RAPS Program and for coordination with other DA staff agencies and State Adjutants General on matters pertaining to the prevention of accidents. This responsibility is vested in the Director, ARNG.

—The Chief, ARNG Aviation Division has staff responsibilities for supervision of the program. The ARNG Safety Branch, in turn, is the coordinating center on all matters pertaining to the RAPS. It provides control for the funding and personnel requirements to ensure an integrated, comprehensive and continuous RAPS program is accomplished throughout the ARNG.

—The State Adjutants General are responsible for establishing, supervising and directing the RAPS Program through their State Aviation Officers. They ensure adequate provisions for safe practices and physical standards are incorporated into all the State aviation facilities.

—The Army Aviation Flight Activity/Army Aviation Support Facility/Aviation Classification and Repair Activity Depot commanders are responsible for conducting a continuing vigorous effort toward the prevention of accidents in all operations and activities at their facilities. To this end, they advise and coordinate with the State Aviation Officer (if they are not one and the same) on implementing the

Facility to Conduct Survey	FY 82	FY 83	FY 84
Team #62 (Stationed at Aurora, CO)	Lincoln, NE	Topeka, KS	Cheyenne, WY
Team #63 (Stationed at Bismarck, ND)	Topeka, KS	Cheyenne, WY	Aurora, CO
Team #64 (Stationed at Rapid City, SD)	Cheyenne, WY	Aurora, CO	Bismarck, ND
Team #65 (Stationed at Lincoln, NE)	Aurora, CO	Bismarck, ND	Rapid City, SD
Team #66 (Stationed at Topeka, KS)	Bismarck, ND	Rapid City, SD	Lincoln, NE
Team #67 (Stationed at Cheyenne, WY)	Rapid City, SD	Lincoln, NE	Topeka, KS

Schedule of surveying in the VIII Region

RAPS Program. They arrange for the scheduled survey to be conducted by coordinating with their appropriate contemporary as outlined in Appendix B, NGR 385-5. A sample matrix is shown in the accompanying figure.

RAPS teams consist of sufficient members to accomplish the standardized checklist contained in NGR 385-5, as it would apply to the aviation facility being surveyed. A model team would consist of a team chief and the following specialists: one operations/training; one maintenance; two safety (air and general). This is not to imply that three individuals during 3 days or seven individuals during 1 day might not be a more appropriate team. The team's composition is the prerogative of the surveying facility commander, based on input from the facility being surveyed, and travel and time considerations.

ARNG aviation facilities prior to implementing the RAPS Program were primarily surveyed by the U.S. Army Safety Center, appropriate Army Headquarters, or inhouse. Feedback from the RAPS reports received at NGB and conversations with the participants of this program indicates positive support for the RAPS Program. It has provided meaningful inspections of ARNG aviation facilities by using ARNG developed checklists; a means for the mutual exchange of ideas and managerial concepts through association and discussion with personnel from other member states; a means of minimizing travel and per diem costs to accomplish aviation safety surveys; and, RAPS provides the catalyst for keeping aviation accident prevention high on the priority list!

The opinions expressed in this article are those of the author and do not necessarily reflect the views of any Department of Defense agency

ZSU-23-4

SOVIET AIR DEFENSES
Against Attack Helicopters

In this three-part series, the author reviews current Soviet military literature in an effort to determine vulnerabilities in their air defense against low level attack helicopters. He examines air defense philosophy, Soviet small arms, the SA-7 and the ZSU-23-4 at the Soviet battalion level. Although there are several vulnerabilities which can be exploited, the author concludes that the primary threat to helicopters is the Soviet ZSU-23-4. Changes to current U.S. antitank helicopter training and tactics are recommended in order to enhance the helicopter vs. tank kill ratio

PART 1: the Philosophy

Lieutenant Colonel Brian P. Mullady
59th Air Traffic Control Battalion
APO New York

IN JUNE 1972, Phase IV of the "Joint United States-German-Canadian Attack Helicopter Evaluation" was conducted near the town of Ansbach, West Germany, and came to be known as the "Ansbach Trials." The test was designed to determine how well attack helicopters would fare in a European environment against attacking enemy armor, including the type of antiaircraft weapons typically employed by the Soviet forces. The results of the test were as follows: 18 enemy tracked vehicles destroyed for each attack helicopter lost, or 13:1 if the scout helicopter casualties are recorded. What many tend to forget (it is not widely publicized) is that U.S. pilots killed only 8.6 aggressors per antiarmor helicopter lost, whereas the combined record of the German and Canadian pilots was 41.7 aggressors killed per helicopter lost.

Since the U.S. pilots were at least as proficient in the AH-1G Cobra as their North Atlantic Treaty Organization (NATO) counterparts, and as a group had far more flight hours recorded in the aircraft, what caused this startling difference? The report of the evaluation explains it this way: "The German and Canadian pilots . . . appeared to have a better appreciation of the European terrain and of the application of nap-of-the-earth flight techniques, generally selected better firing positions, and had a better grasp of the tactical situation and likely aggressor actions."

This and the two following articles are intended to aid in closing the statistical gap between U.S. pilots and their NATO counterparts. They will be different from most accounts concerning Soviet air defense. Instead of reporting and emphasizing the *strengths* of Soviet air defenses, an attempt will be made to determine their *vulnerabilities*. Further, ways to exploit these vulnerabilities in their air defense philosophy,

Attack aircrafts' first priority should be to destroy or suppress air defenses, then to provide the necessary fire support required by the ground commander

SA-7

their weapons systems or their techniques will be suggested. Information will be provided which will assist the attack helicopter pilot and ground commander in solving the last three problem areas mentioned in the Ansbach test report, namely: selecting better firing positions, understanding the tactical situation and predicting likely aggressor actions.

The primary reference sources used are Soviet, especially the monthly publication, *Voyennyy Vestnik* (Military Herald). Although much fresh literature has been published by the Soviets during the last several years concerning the employment of such weapons as the SA-7 Strella (called Grail by NATO) and ZSU-23-4 antiaircraft gun (hereafter referred to as the "ZSU"), precious little regarding the capabilities of these weapons has been published by the Soviet press. The real value of Soviet literature is to be found in the descriptions and explanations to their own forces of the antiaircraft tactics to be used and methods of weapon employment. This information, together with Western data concerning weapons capabilities, provides the clearest possible picture of the low level antiaircraft system presently employed by Soviet forces and is of the greatest value to pilots and to both air and ground commanders. Finally, drawing strictly on Soviet sources concerning their tactical exercises is one of the best ways to achieve any degree of predictability regarding likely aggressor actions in combat.

In nearly every scenario of a Warsaw Pact attack on Western Europe, the antitank capability of NATO attack helicopters is one of the critical factors in determining the outcome of the first few hours and days of the battle. There will be no time to pass on the "lessons learned" which so increased the effectiveness of our aircraft in Vietnam. U.S. Army aviators must lift off on their first mission knowing what to do—in short, how to fight, survive and win. Based on the Ansbach test results, an assumption can be made that everyone associated with Army Aviation needs to know far more about the Soviet threat.

It has been necessary to impose certain limitations to keep these articles to a manageable size and pertinent to attack helicopter employment. First, the air defenses of a typically deployed Soviet battalion are examined. It is this unit (with normal augmentation) which is considered in Soviet military literature as the basic combat unit. There is also much more open source material available here than at higher levels. And the weapons which pose the greatest threat to attack helicopters (small arms, SA-7 and ZSU-23-4) are most plentiful here.

Second, only low level Soviet air defenses are discussed. Once attack helicopter pilots begin to climb on the European battlefield, they become vulnerable to an increasingly greater arsenal of air defense weapons. The airspace from 100 feet to several miles above ground level requires far more sophisticated means of antiaircraft defense. A recurring theme throughout will be that current U.S. attack helicopter employment fails to emphasize strongly enough the importance of destroying Soviet air defense weapons in the first engagements.

The oft-repeated phrase, "attack helicopters have one mission—kill tanks!" is wrong. The attack helicopter

battalion commander who believes he is paid to kill tanks, not ZSUs is, in essence, wrong. Attack aircrafts' first priority should be to destroy or suppress air defenses, then to provide the necessary fire support required by the ground commander. That does not mean that attack helicopters should waste time searching for air defense weapons, which is the job of scout helicopters, ground forces, etc. It simply means that attack helicopters should destroy, wherever possible, Soviet ZSU-23-4s. This is not now our clearly stated tactic; it is not emphasized or even tested in current evaluations and may result in pilots attempting to avoid ZSUs while seeking out tanks in the initial engagements. The following sections will support the validity of this conclusion.

Most Western authors depict the Soviets as possessing the best air defenses of any army in existence. There is always the graphic representation before the readers' eyes of a series of overlapping air defense "umbrellas" provided by various weapons which begin with small arms fire against the lowest, closest air targets and go to weapons systems which can destroy a U-2 at maxmium altitudes. Some writers have even suggested that the lethality of Soviet air defenses has had the effect of neutralizing aviation as a weapon on the European battlefield. However, the "total" coverage attributed to Soviet air defenses is accurate only when Soviet units are stationary or in the defense. As soon as they begin to move, the air defense system—and especially the low level system—will be degraded. Further, Soviet units will most likely be encountered while moving.

Soviet air defense concepts are in accord with their experiences in World War II. The Soviets vividly remember 22 June 1941, when the German army launched Operation Barbarossa with an unmerciful attack of 5,000 aircraft which was spectacularly successful. However, the Soviet military does not plan to fight the next war as it did in 1941. They have witnessed the use of our helicopter and close air support aircraft in Vietnam. They have examined the experience of air defense forces in the Middle East wars. Their view of today's battlefield is quite different. Due to the availability of tactical nuclear weapons on the modern battlefield, the Soviets conclude that large concentrations of forces will become immediate targets. Therefore, Soviet units in the attack will be brought from relatively secure positions well behind the line of immediate contact. The result is that Soviet columns on the move will be the typical encounter. The Soviet textbook, "The Offensive," describes armored assaults across a broad front, spearheaded by independently maneuvering columns advancing 100 kilometers per day, maintaining wide gaps between columns to avoid destruction by NATO's nuclear weapons, rapidly crossing radioactive zones, bypassing the great floods, fires and destruction caused by nuclear detonations. The battlefield will be gigantic in comparison with past wars; and the Soviet advance will be characterized, above all else, by a rapid tempo of attack. Speed of the Soviet column is expected to lie in the range of 12 to 20 miles per hour and vehicle intervals will be about 100 meters. During the approach march, tanks are expected to continue to move while under fire from attack helicopters, even increasing their speed, and will not return fire against them.

The fact that armor is the heart of the Soviet-led Warsaw Pact doctrine and tactics is clearly reflected in the writings of Soviet military leaders. Colonel A. A. Sidorenko, Doctor of Military Science and a member of the faculty of the Frunze Military Academy, has written:

> *. . . (all) offensive actions will be conducted primarily in tanks . . . . Battles in dismounted combat formations are only where the enemy offers strong resistance and where the terrain hinders the actions of the maneuver battalion on vehicles.*

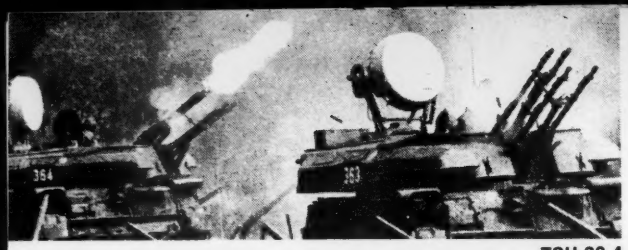
That concept goes back well before the 1970s. In the 1962 publication, "Military Strategy," Marshall Vasiliy Sokolovskiy declared:

> *"An offensive should be mounted using primarily tanks and armored troop carriers. Dismounted attack will be a rare phenomenon. Mechanized firepower and maneuvers of troops in vehicles will now reign on the battlefield."*

Given this Soviet view of the modern battlefield—the emphasis on speed, dispersion and armor—how are air defenses employed to support this type of warfare? What is the air defense philosophy? What are the basic principles?

A review of Soviet military publications concerning the roles and missions of their air defense forces indicates that the operative principles which are constantly repeated are *deployment in mass, mobility, dedication to mission* and *continuity*.

Deployment in mass, in the simplest definition of the concept, means that the discovery of one antiaircraft weapon by U.S. forces will indicate that another is nearby. For example, it would violate basic Soviet air defense philosophy to assign one ZSU-23-4 mount to independently defend a unit, particularly one on the move. However, this principle of "massing" air defense weapons is often misunderstood in Western literature. It does not mean great numbers of air defense weapons per se, rather that air defense systems are employed in pairs. One American author has stated that the ZSU-23-4 will comprise the tank company's self-screening AAA cover. They may be



ZSU-23-4

allotted on the basis of perhaps two air defense units per tank company (10 tanks), a 1:5 ratio. This is true for the leading two companies of a tank regiment, but what of the other seven tank companies and assorted support units? A Soviet tank regiment has 118 armored vehicles and only 4 organic ZSU-23-4 antiaircraft gun mounts assigned. There are also 36 SA-7s assigned to this regiment, but the effectiveness of this weapon against attack helicopters is not clearly established and will be discussed later.

Mobility means that air defenses are designed to maintain the same speed as the units they are covering. This principle implies several things to the attack helicopter pilot. Fresh attacking Soviet units, regardless of how far and rapidly they have traveled, will have antiaircraft mounts organic to the leading elements. It also should imply that once the antiaircraft guns have been detected, they should be engaged immediately since they will not be there again. Finally, the attack helicopter pilot should be aware that the effectiveness of a moving antiaircraft gun is severely degraded. That is due somewhat to the smoke and terrain-induced movement of the mount, but primarily to the difficulties in visually detecting the attacking helicopter while keeping up speed in a rapidly moving column. When under an attack, the ZSUs in column may either fire on the move (with less accuracy) or perform a "leap-frog" tactic (firing from a short halt while the other ZSU rushes toward the front of the column, and then reversing roles). Leap-frogging provides for more effective fire; but it also allows the ZSU to become a better target, and it can only be used when there are at least two ZSU mounts in column. Obviously, if the first target struck in column were a ZSU-23-4, the "leap-frog" tactic could not be employed. It if were the lead ZSU, the fire of the second would be severely degraded as it rushed to a more forward position in the attacked column. Although SA-7s can be fired by a gunner standing in the rear hatch of a Soviet BMP (armored personnel carrier), it is hard to see how this fire would be effective against a helicopter hovering low, head-on (lowest infrared profile) and at maximum range.

Dedication to mission is a constantly repeated basic principle of the air defense assets of the battalion. In his textbook, "Antiaircraft Subunit in Combat," Lieutenant General V. A. Gatsolayev expressed this philosophy when he wrote:

> *The essence of an antiaircraft podrazdeleniye's (note: any size unit below regiment) combat mission can be expressed with two words, "to cover," The term "to cover" could equally be replaced with the phrase "to defend against danger from the air" or even more precisely, "to prevent strikes and reconnaissance of the target from the air." In other words, the antiaircraft podrazdeleniye engages in battle against an air enemy not generally, but in the interests of certain forces or rear services facilities.*

This, it is stressed in Soviet sources, includes not firing upon a clearly hostile aircraft when doing so might endanger its supported unit or compromise the supported unit's position. This information is important to the attack helicopter pilot. In fact, a lack of immediate fire from a detected Soviet unit on the march may be the rule rather than the exception.

In a 1975 article in *Voyennyy Vestnik*, it was emphasized that a single aircraft normally will not be engaged, to avoid giving away the location of a battalion, unless it attacks the battalion directly. The article praises air defense troops who allowed a "scout helicopter" to fly directly over the supported unit. Another Soviet article praises an antiaircraft unit for holding its fire in order to draw two aircraft, instead of one, into a space from which they could not escape unpunished.

In addition to Soviet air defenders' dedication to mission, there are several other examples of antiaircraft gunners holding their fire and being praised for doing so. Due to the self-perceived effectiveness of their air defense weapons, the Soviets have stressed that air defense weapons themselves may become lucrative targets for attack. There is much to indicate that air defense weapons may be counting on surprise, not opening fire until there is a clear certainty of destruction before giving away their positions.

Identification of enemy aircraft will be a problem in a European mid-intensity environment. The Soviets must always consider the possibility of shooting down one of their own. The result of this possibility, coupled with the Soviet emphasis on a highly centralized command, leads to an extremely strict firing discipline.

The Soviet soldier and ZSU-23-4 gunner alike simply do not open fire until they are told to do so, and even then not until they are told which target and where. In a 1977 article in *Voyennyy Vestnik*, the following excerpt is typical of the emphasis in this area:

> *During the exercise . . . the "evening's" first reconnaissance helicopter was detected by squad commander Guards Junior Sgt. A. Komushin. By the agreed-upon signal, he immediately reported that fact to the commander of the 3rd company, Guards Senior Lieutenant V. Stolyarov. And it was then that a substantial error was made. Instead of concealing the location of the battalion on the pass*

and allowing the helicopter to get through, the officer gave the order to open fire, thus revealing the company's strong point.

From the standpoint of looking for vulnerabilities, this tendency to delay fire for any number of reasons certainly stands out as an advantage to the attack helicopter pilot. Indications are quite clear that the air-ground engagement may not be of the "quick draw" variety that NATO exercises, our tactics and tests seem to stress. If the Soviets choose to delay fire until the unit is clearly detected and attacked by enemy air, the obvious first target should be a ZSU mount, the weapon that is most lethal to the attacking helicopter.

The principle of *continuity* is closely related to mobility but stresses the idea that air defense coverage must be provided for the supported unit in all tactical situations. Under no circumstances will the air defense assets allow themselves to be separated from their supported unit. The message is constantly repeated in Soviet publications that the most serious mistake an antiaircraft battery commander can make is to allow his ZSU mounts to fall behind the column for any reason. In some cases this philosophy has been carried to the extreme of not allowing ZSUs to fire from a short halt for fear that they would fall behind the unit. Soviet writers stress this while at the same time stating that a moving column is most vulnerable to air attack. **An air defense philosophy which stresses continuity of air defenses to the detriment of air defense effectiveness increases the psychological impact on a Soviet unit deprived of its air defense mounts, which is another argument for destroying the air defenses at every opportunity.**

In addition to the four basic principles of Soviet air defense philosophy discussed above, there is another recurring theme which, while considered a strength, also reveals a potential vulnerability. The Soviets conduct most of their exercises in an environment which emphasizes either radio silence or a loss of communications due to enemy "jamming." Soviet aircraft and helicopters are constantly depicted in the open press as providing a *visual* signal to the Soviet ground forces which indicates "I am one of yours." During maneuvers, Soviet aircraft execute a predetermined maneuver, launch colored rockets (or flares), or turn on navigation lights to allow ground observers to confirm their identity. The system is vulnerable and can be exploited by discovering the Soviet signal for "I am one of yours" and using it just before the attack. Naturally, such a ploy is not without risk; but it would confuse an antiaircraft gunner for a few critical seconds, and it could allow an aircraft under ground attack the possibility of a cease fire. If used several times, there is also the possibility that ground observers would begin to distrust the compromised visual signal and fire on their own aircraft. The first Soviet prisoner should be questioned concerning the visual signal, and any discovery of such a signal by friendly ground or aviation personnel should immediately be reported and exploited.

Soviet literature nearly always describes the use of colored flares fired in the direction of an aircraft as the signal to notify the unit of a hostile sighting and also to command the unit to open fire. The Soviet practice of strict fire discipline could lull the crewmembers of the attacking aircraft into thinking that they have not yet been detected. However, an exposed pilot, observing a visual signal from a Soviet troop unit, should immediately expect to receive fire. Additionally, the launch point of the flare should be noted; a unit commander, and a lucrative target, has just given his location in the column.

Although the vulnerabilities of a Soviet low-level air defense philosophy have been discussed, it must be stressed that many of these vulnerabilities exist only when the unit is moving. When a Soviet battalion is stationary or in a defensive role, these philosophical principles act as strengths.

Soviet doctrine clearly indicates that the "defense" is always a forced and temporary condition. During all defensive operations, the emphasis will be on inflicting maximum damage on an attacking enemy. This aggressive attitude is certainly reflected in the role of the air defense. Unlike the fluid and dynamic character of the offensive, Soviet air defenses will be characterized by ambushes, roving guns which are actively seeking targets of opportunity, and all-around unit coverage by overlapping fields of fire and observation. Camouflaged antiaircraft positions will be shifting to deceive aircraft and hide the unit's true location. Antiaircraft guns and surface-to-air weapons of higher command echelons will be integrated with those of the battalion. Finally, fighters and interceptors of Soviet Frontal Aviation can be expected. As one Soviet author writes, helicopters will not be able to attack from the flank or the rear. They may try, but to do this they will have to cross an air defense zone which has both reconnaissance facilities and weapons for destruction of air targets; they will have to fly over various locations screened by air defense troops, and consequently they can be detected and destroyed.

A review of Soviet air defense literature indicates that attacking a prepared Soviet defensive position is not a mission for aircraft unless the attack is part of ground attack, well supported by artillery. Even then, losses of attacking aircraft will be high.

Next month—Part II: Individual Weapons

THE AVIATION NCO

Command Sergeant Major David L. Spears
U.S. Army Aviation Center
Fort Rucker, AL

I THINK THE entire neighborhood was still asleep when I left home for work this morning. It is several miles to the unit where I'm assigned as an aviation platoon sergeant, and I used that driving time to mentally go over plans for the busy day ahead. When I arrived at the company, I checked with the first sergeant to see what had occurred since the previous afternoon. The only thing of note he had to tell me was that SP4 Johnson, one of my crewchiefs, had not returned from leave as he was supposed to. Since he is scheduled to fly today, I have to find a replacement for him, pronto. That's a further complication to my job of ensuring that 8 of the 10 UH-1 helicopters I'm responsible for are ready to lift off at 0630, about two hours from now. We have to move an infantry company to the field.

My responsibility as a platoon sergeant also includes seeing that the maintenance equipment required to keep the Hueys flying is available, and supervising 12 crewchiefs.

After I left the first sergeant I stopped by the barracks and found the cleaning which had to be done by the platoon before breakfast was well underway. I asked one of the men, a specialist five, how many hours his aircraft had before it would be down for inspection. He told me eight.

From there I went to the dining facility where I met the platoon leader. We had some coffee as we went over the day's mission. The captain wanted to know who would replace Johnson. I said that since there are three people on leave and one in the hospital, I will fly the mission and then work with the maintenance crew tonight after our return.

On my way to the hangar I had some more thinking time: Are the parts in for the two aircraft in maintenance? Did I get the statements the first sergeant wanted for the Chapter 13 action? Did SP Johnson turn in his tool box before going on leave? Did maintenance get the servo changed during the night shift? Is SP Brown still having marriage problems, and will he be on time this morning?

It is now 0510 and I can see several people moving around on the flight line. In the platoon headquarters room I find that keys, survival equipment and APUs are being issued by the clerk. I remind a crewchief that this is an all-day mission so C rations will be needed for the entire platoon.

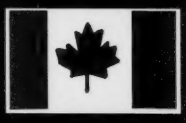
Everything is now ready. The Hueys take off on time and arrive at the pickup point for the infantry company. The soldiers board the aircraft and are then flown to their destination—right on schedule.

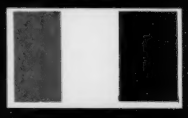
If the rest of the day goes as well, I'll be pleased!

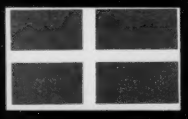
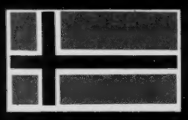
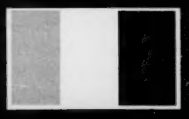
The foregoing could be taken from any day of any Army Aviation platoon sergeant. Some days will go as planned and some won't. In either case, the sergeant will handle it. I'm thoroughly convinced of that because our aviation noncommissioned officers are a special group of people.

When they stand in front of their troops, march in a parade, qualify at the rifle range or prepare for an in-ranks inspection, they are combat leaders. They must also be highly skilled technicians on the sophisticated aircraft in the Army inventory. We don't promote them any faster or pay them any more money than any other NCOs, but we expect—and receive—a lot more from them.

RSI Report





THE SIXTH MEETING of the Helicopter Interservice Working Party (HISWP) met at North Atlantic Treaty Organization (NATO) headquarters in Brussels, Belgium, during the period 22 to 26 February. Delegates from 10 nations and 2 major NATO commands attended. A summary of the most important actions of the working party follows:

1. Draft ATP-49—*The Use of Helicopter in Land Operations.* The draft outline of this publication was approved by the Army Board. It will incorporate the contents of each of the helicopter related operational Standardization Agreements (STANAGs) and will be presented in a small compact handbook. Although the publication is intended for aviation units, a section will be written to provide ground commanders with basic information on helicopter operations. The writing of the publication will be a joint effort among France, the United Kingdom and the United States. The working party has assigned this publication its highest priority. A first draft for review is programed for this summer. The final draft will be issued to nations after the seventh HISWP in March of 1983.

2. A new draft edition for ratification which incorporates changes to existing agreements will be circulated for each of the following STANAGs:

STANAG 2351, Procedures for Marshalling Helicopters in Air Mobile Operations
STANAG 2355, Procedures for Employment of Helicopters in Anti-Armor Role in Support of Ground Forces
STANAG 2861, Procedures in the Event of Downed Helicopters
STANAG 3597, Helicopter Tactical or Non-Permanent Landing Sites

3. A review of draft STANAGs was conducted. A new draft for ratification which incorporates the proposed changes will be circulated for each of the following STANAGs:

STANAG 2946, Forward Area Refueling Equipment
STANAG 2947, Technical Criteria for a Closed Circuit Refueling System
STANAG 2949, Technical Criteria for External Cargo Carrying Slings
STANAG 2950, Technical Criteria for External Cargo Carrying Nets

NOTE: A color code was proposed for identification of the load restraint capability of tie-down fittings for helicopter and external lifting devices. The United States will evaluate this proposal and report their recommendation at the seventh meeting of HISWP.

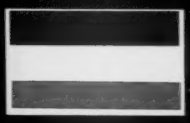
4. The following draft STANAG/studies were reviewed, but nations recommended further study before circulating for ratification:

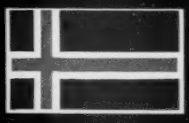
STANAG 2951, Non-Electronic Communications
STANAG 2956, Helicopter Mission Tasking Messages
STUDY 2958, Instrument Flight in the Battlefield Area
STUDY—Joint Close Air Support/Attack Helicopter Operations

5. Attack helicopter and scout aircrews should be aware that when conducting joint operations with NATO forces that the term hand-off has a different meaning to some forces. In an effort to standardize NATO language the term handover may become the common phraseology for passing a target from the scout to the attack helicopter.

The seventh meeting of HISWP will be held in March 1983. During the interim, new drafts of agreements will be written, drafts for ratification will be circulated and many other required actions will be completed by each nation. The objective of all these actions is to promote standardization and interoperability among NATO forces both in operational procedures and equipment.

If this article has generated any questions or requirements please contact Mr. Rush Wicker by writing: Commander, U.S. Army Aviation Center, ATTN: ATZQ-D-CC, Fort Rucker, AL 36362.





Yellow IS BETTER

MUCH RESEARCH and technological advancement has been made in recent years in the understanding of light and the human eye. Night vision goggles have enabled aviators to operate closer to the terrain at night than we have in the past; however, a substantial portion of night flying is dependent upon vision with the unaided eye. Because of this fact the technological understanding of light has been of utmost importance.

White light generally contains all the wavelengths or light colors. These can be separated into blues (short wavelengths) and/or yellow (medium-long wavelengths) by filters or other means. The blues are reflected and refracted (scattered) much more by dust and water particles than the yellows. The yellows tend to continue straight until reflected by a larger solid object or viewed by the eye. Yellow light will illuminate large objects with much less glare or interference than blue or white light when dust, water particles or ice particles are present in the air or on the windshield.

We can use this technological knowledge of light to improve landing lights and searchlights. Landing and searchlights are used to safely maneuver an aircraft during taxiing, takeoff and landing.

Suggestion number R81-131M, modification of landing lights, has been evaluated by appropriate engineering elements of Troop Support and Aviation Materiel Readiness Command (TSARCOM) and Aviation Research and Development Command (AVRADCOM). The conclusion is that it is a valid suggestion and should be adopted. The modification is now authorized for all Army aircraft operating in Alaska.

The modification consists of placing a 3/16 inch yellow plexiglass lens, 7 inches in diameter, ¼ inch in front of the landing light. By lengthening the two screws—using spacers between the landing light and the plexiglass—heat is able to dissipate and as a result does not damage the lens.

This modification has been used on 22 UH-1H Huey helicopters assigned to the 120th Aviation Company (CS), Ft. Richardson, AK. With this modification more than 10,000 hours have been flown: The majority of these hours have been flown during nighttime.

The pilots who tested the modification agree that the yellow lenses are an improvement over the white landing light currently in Army use.

The pilot has gained major advantages by using this modification. The pilot has the option of a bright white searchlight or a yellow soft landing light of less intensity. Yellow light reduces glare—following the same theory of using fog lights on an automobile. By using the yellow lens, the aviator cuts to a minimum the scattering of light off dust, snow and water vapor.

Most aviation units are constantly involved in night-to-night operations—night assault, resupply, sling loads, medical evacuations and countless hours in poorly prepared landing zones. During these night operations, if marginal weather and reduced visibility are prevalent, pilots continue to operate with only the knowledge obtained through their experiences. However, experience

in many cases is not enough. Pilots need to have every technological advantage to aid them in night flight.

By using the earlier mentioned modification or, even better, replacing the current white landing bulb with a lesser intensity yellow bulb, the pilot is given the choice of a searchlight or—an improvement in technology—a yellow light. If the night conditions warrant the use of a searchlight, use it. However, if the mission is conducted in marginal weather with reduced visibility, it is sometimes more hazardous to use the white landing light or searchlight. In some cases, using the white light in reduced visibility has a tendency to induce disorientation.

The yellow light technology has been used on automobile fog lights for many years. The yellow light has less glare and allows the driver to distinguish objects better than does a white light. The glare caused from white light affects not only the driver but also drivers of oncoming cars.

The same basic principle applies in night flying. Once we look at another bright white light, much (if not all) of our night vision is lost. If our white landing or searchlight is turned on, the same philosophy applies. If the yellow light is used, or another yellow light is looked at in use, the effect the white light would have had on our eyes is lessened. With yellow our total dark adaptation or night vision is regained at a faster rate than with white light.

Two factors concerning the modification to use yellow light need elaboration. Yellow light does reduce total light; this fact is an advantage, not a disadvantage. We have believed the more candlepower the better. This concept is not necessarily so. It is not the quantity of light or distance which is important but rather the quality of vision available under varying conditions. Moreover, yellow light changes the colors and perception of the illuminated area in much the same way that the red map light tends to filter out red lines on a map.

I visited Major Frank F. Holly of the U.S. Army Aeromedical Research Laboratory, Ft. Rucker, AL. Major Holly conducts research with the Sensory Research Division. He agreed with the yellow light philosophy. While with Major Holly I took the color vision plate examination administered to all aviators during their annual flight physical. Using the yellow lens, I was able to read each colored number. The numbers with yellow and tan were difficult but readable. I don't feel that this color disadvantage is more of a problem than the high intensity white light we have used for many years. It is possible that the white light has contributed to many of our night accidents.

The benefits and savings of this modification are numerous. With the use of the yellow lens in marginal weather, fog, dust or any precipitation, visibility is increased. Night dust and night blowing snow landings are greatly improved because of less light scattered from snow, dust and the ground. With the yellow lens in use, the pilot maintains most of his night vision.

If one aircraft can execute a safe landing in marginal conditions by the advantages of this modification, the tangible savings are evident.

Yellow landing lights are needed because technological data confirms what practical testing in the field has proved. By modifying all Army aircraft, we have taken away nothing and have given the pilot an option. By using the yellow light in marginal weather, aviators increase their ability to identify objects.

Currently the yellow landing light modification is being used only in Alaska. According to TSARCOM and AVRADCOM, "the probabilities of establishing a product improvement program is near zero because there is no user requirement for the change."

There is a user requirement for yellow lights. We as pilots work over, through and around many mission-related problems and we feel that problems go with the job. However, the yellow light is a solution to one of the problems. We need yellow lights to help successfully complete night missions safely and to assist in the training of our newly rated aviators. There is no need for experience gained from white-knuckle night flying the way many aviators learned to fly in the past.

Let's use every technological tool that is available to conduct night operations safely. Let's establish "user needs." To improve all types of aviation operations, let's use expertise in the field. Just because "It's been like that for years" or "We've always done it that way" doesn't make these operations right. Yellow is better!

Let's hear your feedback to *Aviation Digest.* Let's cause improvements to be made.

1. Is reduced visibility at night a problem which needs further study?
2. What tools do we have readily available, besides knowledge, to aid pilots in night marginal weather?
3. How long are you willing to wait for improvements in the field?

CW3 Gary E. Rossomme

CW3 Rossomme was attending Warrant Officer Senior Course 81-2 when he wrote this article. He developed and tested the yellow light while assigned as an instructor pilot with the 120th Aviation Company, Ft. Richardson, AK. CW3 Rossomme has 3,700 hours of helicopter time and holds FAA ratings of CFI, CFIT and ATP for helicopters and CFI and MEI for fixed wing aircraft.

MONTHLY WRITING AWARD

FROM ROUTINE TO NEAR DISASTER

CW3 Robert A. Stolworthy

In order to graphically portray the day's events, I felt compelled to discuss not only the equipment failures which occurred but also those human elements which played a significant role. There were some crew errors made. I have spoken freely of my own and have taken the liberty of writing about those errors made by the other two crewmembers. I would like to point out that as we discussed the day's events afterward, each of the three crewmembers recalled different details and in some cases they conflicted. Under the conditions which developed there arose some serious questions concerning the appropriate course of action. The intent of this article is to stimulate thinking and "hangar talk." It should not be construed as encouragement to deviate from published procedures. Here are the events as I recall them.

GLOSSARY

AAF	Army airfield
ADF	automatic direction finder
AI	actual instruments
AR	Army Regulation
DG	directional gyro
FAR	Federal Aviation Regulations
FM	frequency modulated
IFR	instrument flight rules
ILS	instrument landing system
IMC	instrument meteorological conditions
NAVAIDS	navigational aids
NDB	nondirectional beacon
PAR	precision approach radar
RMI	radio magnetic indicator
UHF	ultra high frequency
VHF	very high frequency
VOR	very high frequency omnidirectional range

IT WAS AN OVERCAST day in December 1976. Another aviator and I prepared for takeoff on an annual instrument renewal checkride which was to be conducted under actual instrument conditions. I was to occupy the left seat, the other pilot the right seat and the examiner would ride in the jump seat of our UH-1 Huey. We planned to depart Robert Gray Army Airfield and fly to Temple, TX, perform some approaches, then return to Gray and execute the remaining approaches necessary to complete the renewal. Our planning weather looked good. Visibility was not a factor, and the ceiling at Temple was 1,300 feet broken, while the ceiling at Gray was 500 feet overcast. These conditions were forecast to improve. We were pleased since it's not often that you find excellent instrument conditions with a suitable alternate within the fuel range of the UH-1.

With the oral exam completed, we filed the flight plan and proceeded to the aircraft. While checking the logbook, we noticed that the RMI was inoperative in the magnetic mode. I suggested that we continue in the DG mode since, at that time, the regulations called only for a gyroscopic heading indicator.

After the radios warmed up, we put our clearance on request and completed the run-up. We were then cleared to taxi, hold short of the active. The hover checks showed all instruments functioning normally including the heading indicator. (I wondered how the examiner felt about my choice to proceed in the DG mode. Well, never mind, it was in accordance with the FARs and AR 95-1.) Moments later I copied our clearance.

Army 15008 is cleared to Sparks intersection via direct the Hood VOR (a right turn) then, as filed. Climb and maintain 4,000 feet, squawk (appropriate transponder code) and etc. After takeoff, turn *left* heading 270° for traffic separation. We were to take off from runway 33.

Prior to takeoff, the right seat pilot and I became involved in conversation which I felt was necessary crew coordination. On two or three occasions, I felt the examiner pull on my shoulder harness. I got the message—this was a checkride. Again it became necessary to discuss some mission-related matters, and I felt another tug on the shoulder harness. Then the examiner placed my selector switch to private and told me that we were not to lead each other through this checkride. Pointing to the overcast, I said, "OK, but checkride or not, this is the real thing." We continued.

The pilot made a visual takeoff, then transitioned to the instruments and climbed into the solid cloud layer. After climbing above circling minimums, he began a standard rate turn—to the right. (My poor shoulders.) When I asked why he was turning to the right, I felt the now familiar tug on my harness, as the pilot repeated that portion of his en route clearance which told us to proceed direct to the Hood VOR. When reminded of the takeoff clearance, he turned left to 270°, then told me to take the controls.

I assumed control of the aircraft, with all the confidence of a seasoned instrument pilot. After all, I was now a CW2 (the senior front seat occupant) and had about 12 hours of AI helicopter time, most of which was in the left seat. I even had some recent fixed wing AI time, as much as 7 hours in 1 day. Sure, I could fly instruments—as I promptly let the aircraft roll into an inadvertent 30° bank to the right. A sharp comment from the examiner about the rate of turn brought me back to reality. I became very serious about maintaining control of what seemed to be an extremely unstable aircraft, then recalled the discussion which had taken place when I scheduled my renewal ride.

I had been asked if I had 10 hours in the "blue canoe." I said no, and was told to get it, then come back to schedule the ride. I argued that the unit mission may require me to fly instruments on any given day, so why not take a renewal ride without practicing up for it. Good logic indeed. The ride was scheduled, and now we're back in the clouds just leveling off at 4,000 feet. The right seat pilot had finished whatever he was doing and again took the

NEAR DISASTER *continued*

controls. I wondered if he knew how happy that made me. As we received further clearance, we were told to report passing the Hood VOR. Fine, all we have to do is fly our route as cleared, make a few approaches each and be done with it. But the Hood VOR came and went without a word from the right seat. I knew at that point the examiner did not want me to say anything, but I also knew approach control was expecting to hear from us, particularly since there were numerous instrument aircraft in the area. What about that vital element of any operation called cockpit teamwork? When I couldn't stand it anymore, I told the pilot he was supposed to report passing the Hood VOR. I felt the tug on the shoulder harness as a somewhat irritated pilot announced that he had been trying to. The UHF radio had gone out so we switched to VHF. I heard the pilot transmit about three words, then the sound of electrical arcing, then nothing.

We informed the examiner that we were experiencing lost commo, and he immediately told us to turn up our NAVAIDS. As I rotated the volume control on the VOR, we heart the following: "Army 15 double 08, this is Gray approach control transmitting on the Hood VOR. If you hear this transmission, squawk ident." Darned if this stuff doesn't work just the way it's supposed to. I pressed the ident button and we heard the following response: "Roger, Army 15 double 08, this is Gray approach control, we acknowledge your ident feature, turn left heading 330, maintain 4,000. This will be a radar vector to the ILS final approach course runway 15 at Temple, TX." I chuckled under my breath when I realized that all we had to do was listen and comply. What better way to take a checkride?

The turn was made, then came the terminal weather: 400 overcast, 3 miles visibility in light rain and fog. I looked at the examiner, smiled and commented that the weather was considerably different than forecast. We all agreed that this was no problem just as the terminal weather was amended to 300 overcast, 2 miles visibility and deteriorating rapidly. The change in weather caused some concern, but I remember thinking that if the ceiling were ragged we may still be able to break out at or slightly above minimums.

Approach control had done a very good job up to that point and, for the most part, continued to do so. However, I became quite upset with them shortly thereafter because the only message that was repeated twice was the telephone number by which we should contact them when on the ground. Even though we had copied it correctly the first time, they kept sending this double transmission at periodic intervals during what was soon to develop into a full scale emergency. I can appreciate them wanting to know when we were on the ground, but I also wished they'd consider our desire to first get there and respond by sending twice the information which was vital toward that end. This became a significant factor shortly thereafter.

I was on the controls again and doing a much better job since I had counseled myself about my previous performance. Approach control told us to descend to 2,000 feet. The right seat pilot pressed the ident button, and I began the descent. Somewhere just prior to leveling at 2,000 the examiner asked in a startled voice what altitude we'd been cleared to. I told him 2,000. The examiner instructed me to initiate an immediate climb since 2,000 feet was below minimum sector altitude and approach control would not give us such a clearance. I had distinctly heard 2,000 feet, but the examiner's conviction on the issue created just enough doubt to make me wonder if I'd heard correctly. Still trying to make sense of it all, I told him that it was a hard altitude to which we had been cleared. He agreed, and deduced that it must have been 3,000, the altitude to which I reluctantly climbed.

We were beginning to get intermittent reception on one of the communication radios. We heard approach control clear (ironically) Army 15 double 07 direct to the Temple VOR at 3,000 feet. The examiner told me to climb to 3,500 feet. I responded with an immediate increase in power, thinking that there probably would not be anyone else at that VFR altitude.

We were due to hear from approach control and hoped that our next clearance would include an altitude, but what we heard instead was the familiar crackling in the headsets as the VOR receiver burned up. It had been our only means by which to execute the approach for which we were expecting clearance. Things were really starting to pile up on us. We could not talk to approach control, and they couldn't talk to us. We knew approximately where we were, but didn't know where to go, plus we were at an altitude that we knew was wrong and we were without mode C capability. We still had a good ADF receiver, but the Gray NDB was out of service and, at last report, the Hood NDB had numerous practice approaches in progress. If the weather had remained good to the west the practice

approaches would still be in progress; and, if not, to opt for the Hood NDB approach would mean executing the most basic of all nonprecision approaches in weather much too far below minimums to hope for a happy ending.

With the equipment failures and confusion in the cockpit, all occupants of the aircraft began to realize the urgency of the situation. We started reviewing our options. I wanted to proceed to the Hood NDB. Considering the regularity with which our radios had been failing, we could not be sure our transponder was still working, and since approach control did not know our intentions (we didn't even know our intentions), we could not be sure they would clear the airspace. So, we would approach the NDB below low station altitude, being sure to steer clear of the 2,049 foot tower at Stillhouse Lake, then turn direct to final. I still kind of like that idea.

The examiner wanted to reverse course while we still knew about where we were and descend to visual conditions over Belton Lake. I didn't like that idea due to the cliffs at the north end of the lake, not to mention the fact that in the vicinity of the lake there simply had to be zero-zero conditions.

I experienced many emotions in the short period of time during which we felt that we had no reasonable options. Not the least of those emotions was an element of fear. But the fear soon turned to anger as I recalled a recent fatal accident in our unit involving inadvertent IMC. As my anger mounted, I made a commitment to myself. Come hell or high water, this flight was not going to end up in total disaster like the other which had just flashed across my mind. I remembered someone once saying that there was no such thing as complete lost commo, a philosophy which I still do not totally endorse. As I toyed with this thought, it dawned on me that we had not yet tried the FM radio. I knew that approach control didn't have FM capability, but the tower at Gray did—if only we're not out of range. I remember frantically grabbing the IFR supplement and easily turning to the right page since the one next to it was folded in half. FM frequency 32.10 will remain engraved in my mind as long as I live—that's the only one that brought us home.

The tower got approach control on the phone, and told them our altitude and approximate location. We were vectored to final for a PAR approach runway 33 at Robert Gray AAF by information relayed to the tower via land line, then transmitted to us over the FM radio.

On final, our UHF receiver became operable, though weak, so we continued the approach on UHF, keeping the FM in standby.

One more significant factor. On final with the right seat pilot on the controls, we kept steering to the right of the headings which we had been given. Remember the inoperative RMI? Well, the DG was working just fine, but the pilot didn't think so since he had seen it precess slightly in a turn. The headings flown were on the mag compass, as we were to learn later in a debriefing. I don't remember at what altitude we broke out . . . it was pretty low. I do know that if we had talked to each other about the precessing directional gyro we could have prevented the comment "too far right of course to continue safe approach" just as we descended out of the overcast.

As I indicated earlier, my intent is only to bring to light those things which had a significant impact on this flight. I made some mistakes, and the other two crewmembers did also. Unforecast weather and equipment failures stepped in to teach us some lessons that I will not soon forget.

Some of the items which surfaced in the discussions following the flight were:

1. Even though the regulations called for a DG, the checklist called for "IN or MAG."

2. My instrument proficiency was severely lacking. I had been lulled into the trap of complacency by previous successful flights. I believe that my recent fixed wing experience also contributed to my lack of concern. Since fixed wing aircraft are inherently more stable than rotary wing aircraft, I had allowed my instrument cross-check to deteriorate considerably without realizing it.

3. Had we been truly observant during the mission planning, we would have known that the overcast topped out at about 4,500 feet. We could have climbed on top when the question of altitude came up, then avoided traffic visually. We could have collected our thoughts and calmly selected an appropriate course of action.

4. Had someone copied the clearance to descend out of 4,000 feet to an altitude that I remember to be 2,000 feet, it would have eliminated that element of confusion completely.

After most of the discussion had subsided, an older fellow, seems like he was a CW4, came up to me and said, "Bob, you guys did a pretty fair job under the circumstances." Then, with the trace of a smile, he said, "But I have a question for you." I felt as though I was about to learn yet another important lesson. He asked me if we'd had a survival radio onboard. Indeed we had. I wonder sometimes, even today, just how many other options were available to us that we did not consider.

About the Author

CW3 Robert A. Stolworthy is a Senior Army Aviator and a UH-1 standardization instructor pilot with Methods of Instruction Branch, Lowe Division, Department of Flight Training, Fort Rucker, Alabama. He was a member of the 1981 World Helicopter Championship Team.

U.S. Army Communications Command
ATC ACTION LINE

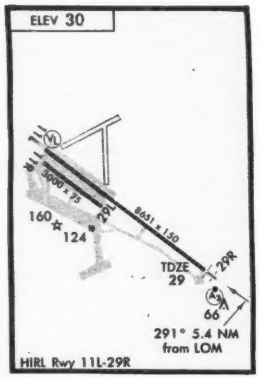
IFR Takeoff Minimums and Departure Procedures

Mr. F. H. Helfenberger
U.S. Army Air Traffic Control Activity
Aeronautical Services Office
Cameron Station, Alexandria, VA

WHAT WOULD YOU DO?

Situation:

- Departure scheduled from Stockton Metropolitan, CA, airport at 0400Z.
- Type aircraft—C-12.
- Pilot LT I. M. Good has logged more than 50 hours of military weather instrument time as a pilot or instructor pilot and has no standard takeoff minimums. (AR 95-1, paragraph 4-25c).
- Weather at departure time—100 feet ceiling, ¼ mile visibility.
- AR 95-1, paragraph 4-25d states, "All aviators will comply with IFR (instrument flight rules) takeoff minimums and departure procedures in flight information publications."



- Published technical order (TO) minimums (DOD FLIP).
  STOCKTON METRO . . . . . Rwy 29R, ½ mile (When control tower in operation)
- Tower operates 1500 to 0600Z and Rwy 29R is being used . . .

NOTE: No takeoff minimums are published for runways other than 29R.

Discussion:

With the information available, I. M. Good has several courses of action:

- He can wait until the tower closes and take off with 100-¼ weather or wait until the visibility increases to ½ mile.
- He can ask for clearance to depart on runways 11R or 29L since there are no TO minimums published. Is it better for legality's sake to take off in poor weather conditions on a 3,000 foot runway or use an 8,651 foot runway that requires ½ mile visibility when the tower is in operation? A paradox exists.
- He can ask for clearance to take off runway 11L since there are no weather requirements associated.

FAR 91.116f establishes takeoff minimums for civil airports as follows:

"Civil airport takeoff minimums. Unless otherwise authorized by the Administrator, no pilot operating an aircraft under Part 121, 123, 125, 129, or 135 of this chapter may take off from a civil airport under IFR unless weather conditions are at or above the weather minimums for IFR takeoff prescribed for that airport under Part 97 of this chapter. If takeoff minimums are not prescribed under Part 97 of this chapter for a particular airport, the following minimums apply to takeoff under IFR for aircraft operating under those Parts:

(1) For aircraft having two engines or less—1 statute mile visibility.
(2) For aircraft having more than two engines—½ statute mile visibility."

(NOTE: Part 91 operators are not included in the above.)

In this situation a credit for civil aircraft having two engines or less is being provided when the tower is in operation; however, it is penalizing I. M. Good for no apparent reason.

WHAT CAN WE DO?

Well, let's be patient, help is on the way. First of all, the takeoff minimums in DOD FLIP were not completely correct. They should read as follows:

STOCKTON METRO . . . . . Rwy 29R, ½ mile *(FAR 135)*

As we have advised previously, FAR 135 does not apply to Army operations and therefore the takeoff minimums would not affect I. M. Good's departure. Also, AR 95-1 is being changed to reflect that FAR 135 is not applicable.

Readers are encouraged to address matters concerning air traffic control to:
Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22314

☆ U.S. GOVERNMENT PRINTING OFFICE 1982—546-037/2

coming next month in the Digest:

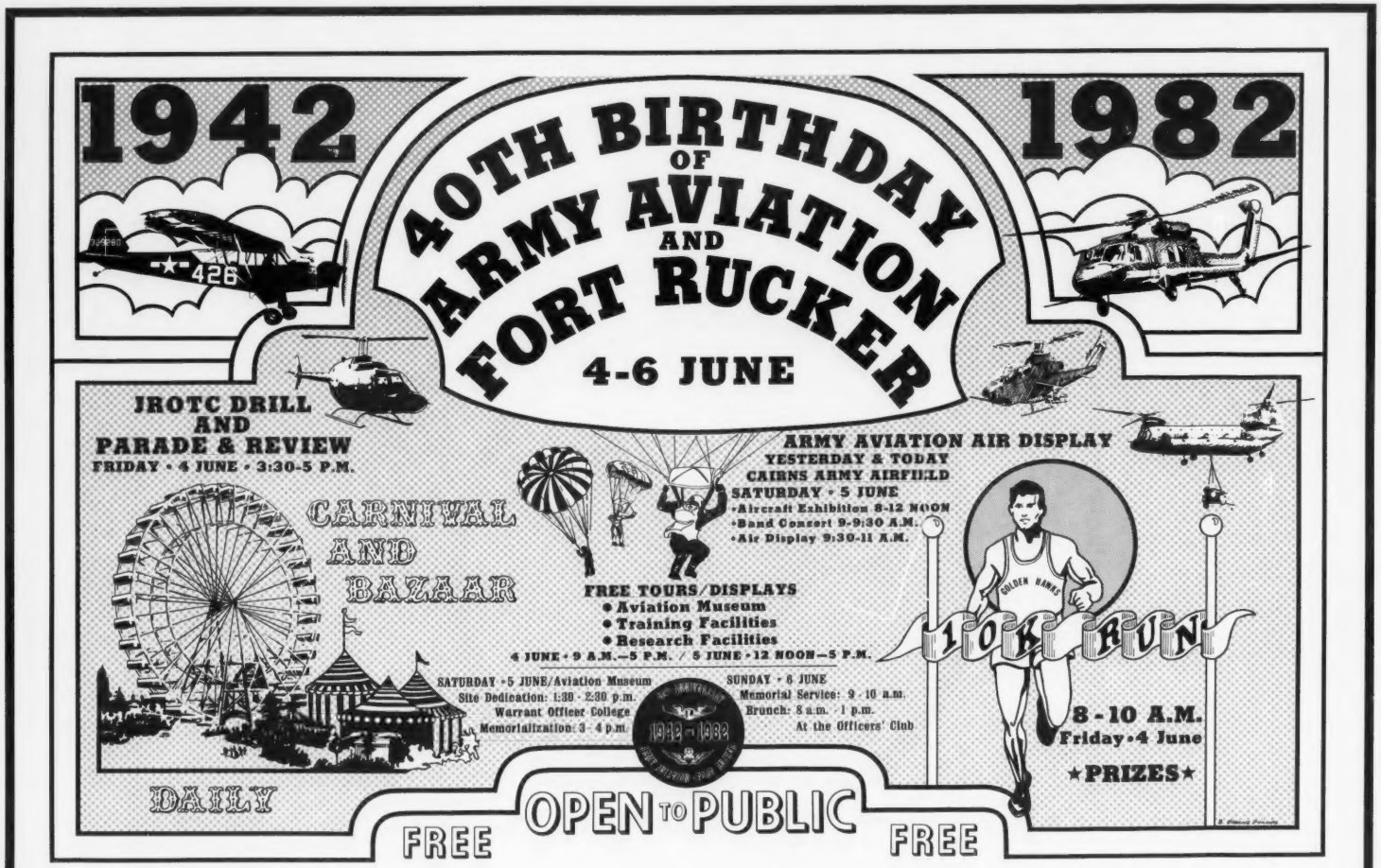
GRASS-HOPPERS

by **BG William W. Ford, USA, Retired**

PART I in a history series commemorating the 40th Anniversary of the birth of Army Aviation

also:

- **A Detailed History of the U-21**
- **Flight to Arizpe**
- **Aviator Selection Research, Then and Now**
- **Army Aviation—Age Forty**


1942
1982
40TH BIRTHDAY
OF
ARMY AVIATION
AND
FORT RUCKER
4-6 JUNE
426
JROTC DRILL
AND
PARADE & REVIEW
FRIDAY • 4 JUNE • 3:30-5 P.M.
CARNIVAL
AND
BAZAAR
DAILY
ARMY AVIATION AIR DISPLAY
YESTERDAY & TODAY
CAIRNS ARMY AIRFIELD
SATURDAY • 5 JUNE
•Aircraft Exhibition 8-12 NOON
•Band Concert 9-9:30 A.M.
•Air Display 9:30-11 A.M.
FREE TOURS/DISPLAYS
• Aviation Museum
• Training Facilities
• Research Facilities
4 JUNE • 9 A.M.—5 P.M. / 5 JUNE • 12 NOON—5 P.M.
SATURDAY • 5 JUNE/Aviation Museum
Site Dedication: 1:30 - 2:30 p.m.
Warrant Officer College
Memorialization: 3 - 4 p.m.
SUNDAY • 6 JUNE
Memorial Service: 9 - 10 a.m.
Brunch: 8 a.m. - 1 p.m.
At the Officers' Club
10K RUN
8-10 A.M.
Friday • 4 June
★PRIZES★
FREE
OPEN TO PUBLIC
FREE